3.3 AIR QUALITY

An analysis was conducted to determine the potential air quality impacts resulting from the Project. The analysis includes an evaluation of criteria pollutants and toxic air contaminants (TAC) from the construction and operation of the Project.

3.3.1 Setting

Existing Site Conditions

The power generation equipment will be constructed entirely within the existing Scholl Canyon Landfill, which is located in the central San Rafael Hills. The landfill surrounding the Project site is flanked to the west by two parks – Lower Scholl Canyon Park and Eagle Rock Hillside Park; to the north by Scholl Canyon Golf and Tennis Club; to the south by the Ventura Freeway (California State Route 134); and to the east by the Rose Bowl Stadium.

The power generation site will be located on the southern side of the landfill. The latitude and longitude coordinates of the power plant is 34.153425°, -118.192518° with an elevation of 1,416 feet above the sea level. The Scholl Canyon Landfill site is located within the South Coast Air Basin (SCAB), which is regulated by the South Coast Air Quality Management District (SCAQMD).

Regional Climate

The Scholl Canyon Landfill is located on the western side of the San Gabriel Valley of the SCAB. The basin is a coastal plain with the Pacific Ocean to the southwest, and enclosed by mountains to the north and east which trap air and pollutants in the valley. The regional climate is considered semi-arid and characterized by hot summers, mild winters, and infrequent seasonal rainfall. Glendale is located inland, where the temperatures are generally higher than along the coast due to the lack of sea breezes, with average monthly highs from 65°F to 91°F and lows from 44°F to 62°F. The relative humidity inland is also lower than along the coast (Western Regional Climate Center, 2015).

Due to the topography and weather conditions of the basin, temperature inversions that prevent the vertical mixing of warm and cooler layers of the air tend to form and allow pollutants to remain at ground level. The coastal location of the basin also creates a wind pattern that blows offshore at night and onshore during the day, so that air pollutants formed in the heat of the day tend to stay inland. Major cities like Los Angeles with high population density and heavy vehicular traffic, combined with the climate and geographical configuration, influence air quality in the basin.

Ambient Air Quality

Overview of Air Quality Standards

The U.S. Environmental Protection Agency (EPA) establishes national ambient air quality standards (NAAQS) to regulate the concentration of six criteria pollutants in the atmosphere: ozone (O3), carbon monoxide (CO), nitrogen dioxide (NO2), sulfur oxides (SOX), particulate matter (PM10 and PM2.5), and lead (Pb). These pollutants are considered harmful to the public health and the environment.

The EPA designates the attainment status of areas in the nation for each criteria pollutant, based on whether NAAQS are met. A "non-attainment area" does not meet the standard and is subject to a State Implementation Plan to attain the standard. Similarly, the California Air Resources Board (ARB) has set its own stricter ambient air quality standards for California, and designates regions in the state as attainment or non-attainment based on those standards. The California ambient air quality standards (CAAQS) include sulfates as a criteria pollutant, which is not addressed in the federal standards.

Both state and federal ambient air quality standards are provided as the maximum allowable concentration over an averaging time of measurement. Maximum concentrations reflect levels of pollutants that can adversely affect human health. The averaging times reflect the potential for short-term or long-term effects. Table 3.3-1 shows the NAAQS and CAAQS.

Table 3.3-1 Ambient Air Quality Standards

Pollutant	Averaging Time	California Standards	Federal Standards
Ozone	1-Hour (ppm)	0.09	--
	8-Hour (ppm)	0.070	0.070 [a]
Carbon Monoxide	1-Hour (ppm)	20	35
	8-Hour (ppm)	9	9
Nitrogen Dioxide	1-Hour (ppm)	0.18	0.100 [b]
	AAM (ppm)	0.03	0.053
Sulfur Dioxide [c]	1-Hour (ppm)	0.25	0.075
	3-Hour (ppm)	--	0.5
	24-Hour (ppm)	0.04	--
PM10	24-Hour (µg/m^3)	50	150
	AAM (µg/m^3)	20	--
PM2.5	24-Hour (µg/m^3)	--	35 [d]
	AAM (µg/m^3)	12	12 [e]
Lead	30-Day (µg/m^3)	1.5	--
	Rolling 3-Month (µg/m^3)	--	0.15
Sulfate	24-Hour (µg/m^3)	25	--
Hydrogen Sulfide	1-Hour (ppm)	0.03	--
Vinyl Chloride	24-Hour (ppm)	0.010	--

Notes:
AAM = Annual Arithmetic Mean
µg/m3 = microgram(s) per cubic meter
ppm = parts per million

Pollutant	Averaging Time	California Standards	Federal Standards

a) On October 1, 2015, EPA established a new 8-hour ozone standard of 0.070 ppm, effective December 28, 2015.
b) Based on the 3-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area.
c) On June 2, 2010, EPA established a new 1-hour SO2 standard, effective August 23, 2010, which is based on the 3-year average of the annual 99th percentile of 1-hour daily maximum concentrations. The EPA also revoked both the 24-hour SO2 standard of 0.14 ppm and the annual primary SO2 standard of 0.030 ppm, effective August 23, 2010.
d) Based on 98 percent of the daily concentrations averaged over 3 years.
e) Based on the 3-year average of the weighted annual mean concentrations.

Source: California Air Resource Board, 2016. http://www.arb.ca.gov/research/aaqs/aaqs2.pdf (CARB 5/4/2016)

Table 3.3-2 provides the attainment status of the SCAB relative to federal and California ambient air quality standards. The SCAB is currently not in attainment with federal or California Ozone standards, California PM10 standards, and both federal and California PM2.5 standards.

Table 3.3-2 State and Federal Air Quality Designations for South Coast Air Basin

Pollutant	Averaging Time	State Designation	Federal Designation
Ozone	1-Hour	Non-attainment	N/A
	8-Hour	Non-attainment	Non-attainment (Extreme)
Carbon Monoxide	1-Hour	Attainment	Attainment
	8-Hour	Attainment	Attainment
Nitrogen Dioxide	1-Hour	Attainment	Attainment
	Annual	Attainment	Attainment
Sulfur Dioxide	1-Hour	Attainment	Attainment
	24-Hour	Attainment	N/A
PM10	24-Hour	Non-attainment	Attainment
	Annual	Non-attainment	N/A
PM2.5	24-Hour	N/A	Non-attainment (Serious)
	Annual	Non-attainment	Non-attainment (Serious)
Lead	30-Day	Attainment	N/A
	Quarter	N/A	Non-attainment (Partial)
Sulfate	24-Hour	Attainment	N/A

Notes:
N/A = not applicable
Lead is in partial non-attainment on the Los Angeles County portion of the Basin.

Sources: SCAQMD: http://www.aqmd.gov/docs/default-source/clean-air-plans/air-quality-management-plans/naaqs-caaqs-feb2016.pdf?sfvrsn=2
ARB: www.arb.ca.gov/desig/changes.htm#summaries;
EPA: http://www3.epa.gov/airquality/greenbook/

Criteria Pollutants

Ozone (O_3) is formed when volatile organic compounds (VOCs) and nitrogen oxides (NO_X) react with heat and sunlight. Exposure to ground-level ozone can trigger coughing and shortness of breath. It can also aggravate asthma and other lung diseases. Ground-level ozone can also damage sensitive vegetation and ecosystems.

The SCAB is currently designated as non-attainment for ozone by both EPA and ARB. SCAQMD, as the local air district governing SCAB, has developed an USEPA approved 8-hour ozone control plan (Air Quality Management Plan or AQMP) with new emission reduction commitments to meet the attainment of federal 8-hour standard by 2023. The AQMP will also demonstrate attainment with the revoked 1-hour ozone attainment. Construction of new emission sources such as those proposed for the Project that are in compliance with the New Source Review (NSR) and applicable local, state and federal air quality regulations would be in conformance with the AQMP.

Carbon monoxide (CO) is a colorless, odorless gas formed by incomplete combustion processes. Most CO emissions come from mobile sources. CO reduces oxygen delivery to organs and tissues, resulting in detrimental effects on body systems. With extremely high exposure, CO can cause death. The SCAB is designated as attainment with CO standards by both the EPA and ARB.

Nitrogen dioxide (NO_2) is used as the indicator for the larger group of nitrogen oxides (NO_X). Other nitrogen oxides include nitrous acid (HNO_2) and nitric acid (HNO_3). Nitric oxide (NO) produced from combustion reacts with oxygen in the atmosphere to form NO_2. Health effects from exposure to NO_2 include airway inflammation and aggravated respiratory ailments in sensitive groups. The SCAB is currently designated as attainment for NO_2 by the EPA and ARB.

Sulfur dioxide (SO_2) is part of a larger group of gases known as sulfur oxides (SO_X). SO_2 is formed from the combustion of sulfur-containing fossil fuels, mainly from power plants and other industrial facilities. Exposure to SO_2 can have an adverse effect on the respiratory system. SO_2 emissions in the basin are low due to the use of natural gas by stationary sources and low sulfur transportation fuels. The SCAB is designated as attainment for SO_2 by both the EPA and ARB.

Particulate matter (PM) is a mixture of extremely small solid and liquid particles, including soil, dust, metals, acids (such as nitrates and sulfates), and organic chemicals. The EPA classifies PM into two categories: PM10 and PM2.5. PM10 consists of coarser particles smaller than 10 micrometers in diameter, which is generally found in dusty areas like roadways and construction sites. PM2.5 is a subset of PM10 and consists of finer particles 2.5 micrometers and smaller in diameter, which are generally found in smoke and haze. Exposure to PM can lead to damaging health effects on the respiratory system.

The SCAB is designated as attainment by the EPA and non-attainment by ARB for PM10 standards. The SCAB is designated as non-attainment by the EPA and ARB for PM2.5 standards. SCAQMD adopted an AQMP to meet attainment status for the federal 24-hour PM2.5 standard by 2014; however, since the attainment has not yet been achieved due to the impacts of recent drought conditions, a new PM2.5 control strategy is developed to ensure attainment status of the federal 24-hour PM2.5 standard by 2019. The construction of new emission sources such as those proposed for the Project that are in compliance with NSR and applicable local, state and federal air quality regulations would be in conformance with the AQMP.

Lead (Pb) is a metal that can be found naturally in the environment and in manufactured products. Historically, the major source of lead emissions was from the use of leaded-fuels. Motor vehicle gasoline fuels no longer contain lead, which significantly decreased lead levels in the atmosphere. Today, the major sources of lead emissions are from lead smelters, battery manufacturing operations, and piston-engine aircraft using leaded gasoline. Lead exposure can result in adverse health impacts to the nervous, kidney, immune, reproductive, developmental, and cardiovascular systems.

EPA revised the federal lead standard from 1.5 ug/m^3, which was established in 1978, to 0.15 ug/m^3 on October 15, 2008. A portion of Los Angeles County was designated as non-attainment in the year 2010. In response to the non-attainment designation, the State submitted *the Final 2010 Lead State Implementation Plan – Los Angeles County to EPA*, which provides steps taken that brought Los Angeles County into attainment by December 31, 2015.

Sulfates (SO_4^{2-}) are an oxidized form of SO_2 in the atmosphere. This conversion takes place quickly especially in urban areas of California due to regional meteorological features. High exposure can increase respiratory stress and cardio-pulmonary disease. Sulfates can also lower visibility and damage the environment and property. The SCAB is designated as attainment for sulfates by ARB.

Existing Air Quality

The region surrounding the Project site has shown a general improvement in air quality with decreasing concentrations of most pollutants throughout the years. Existing air quality in the area complies with state ambient air quality standards for 8-hour CO, 1-hour NO_2, 1-hour SO_2, and 24-hour sulfate; and federal ambient air quality standards for 8-hour CO and 24-hour PM10. Existing air quality in the area is not in compliance with state standards for 1-hour and 8-hour ozone, 24-hour PM10, and annual PM2.5; and federal standards for 8-hour ozone and annual PM2.5.

The closest monitoring station to the Proposed Project site is located in Pasadena, approximately four miles southeast in Los Angeles County. Data for pollutants that are not monitored at this station, such as sulfur dioxide, PM10, and lead, are taken from the Los Angeles-North Main Street monitoring station. The second site was chosen based on proximity and general wind direction

in relation to the Scholl Canyon Landfill. The Los Angeles-North Main Street monitoring station is located approximately six miles south of the Project site.

SCAQMD and ARB publish information for ambient air quality data on both sites. The SCAQMD data summary is used as the primary source, and the ARB database is used when information is not available on the SCAQMD data summary. Table 3.3-3 presents a five-year background of the criteria pollutants monitored at both the Pasadena and Los Angeles-North Main Street monitoring stations through the year 2015. Monitoring data for the year 2016 have not been fully compiled and released by SCAQMD or CARB.

Table 3.3-3 Background Pollutant Concentrations and Exceedances of State/Federal AAQS

Pollutant	Averaging Time	2011	2012	2013[e]	2014	2015
Ozone	1-Hour (ppm)	0.107	0.111	0.099	0.124	0.111
	State Standard	(5)	(8)	(2)	(6)	(12)
	8-Hour (ppm)	0.084	0.086	0.075	0.096	0.084
	State Standard	(13)	(20)	(2)	(13)	(18)
	Federal Standard	(5)	(9)	(0)	(7)	(18)
Carbon Monoxide	1-Hour (ppm)	2.9[a]	2.4 [a]	2.5 [a]	3.1 [a]	2.6
	8-Hour (ppm)	2.2	1.6	2.0	1.8	1.6
	State Standard	(0)	(0)	(0)	(0)	(0)
	Federal Standard	(0)	(0)	(0)	(0)	(0)
Nitrogen Dioxide	1-Hour (ppm)	0.087	0.071[c]	0.09	0.075	0.075
	State Standard	(0)	(0) [c]	(0)	(0)	(0)
	AAM (ppm)	0.0203	0.0172 [c]	0.0218	0.0166	0.015
	98th Percentile 1-Hour (ppm)	0.0728	0.0558	0.0603	0.0601	0.056
Sulfur Dioxide	1-Hour (ppm) [d]	0.019	0.0052 [c]	0.0063	0.0054	0.0126
	State Standard [d]	(0)	(0)	(0)	(0)	(0)
	24-Hour (ppm) [d]	0.0054[a]	0.0018[a]	0.0017[a]	0.0014[a]	0.0011

Pollutant	Averaging Time	2011	2012	2013[e]	2014	2015
	99th Percentile 1-Hour (ppm) d	0.011	0.005	0.0052	0.0044	0.0063
PM10	24-Hour (µg/m^3) [d]	53	80	57	87	88
	State Standard [d]	(2%)	(6.7%)	(2%)	(9%)	(8%)
	Federal Standard [d]	(0%)	(0%)	(0%)	(0%)	(0)
	AAM (µg/m^3) [d]	29.0	30.2	29.5	35.4	33.0
PM2.5	24-Hour (µg/m^3)	43.8	30.5	43.1	38.8	48.5
	Federal Standard	(1.0%)	(0%)	(0%)	(0.9%)	(0.8%)
	AAM (µg/m^3)	10.8	10.12	11.95	11.29	9.57
	98th Percentile 24-Hour (µg/m^3)	29.8	24.2	29.0	26.3	29.7
Lead	30-Day (µg/m^3) [d]	0.012	0.014	0.013	0.013	0.013
	Quarter (µg/m^3) [d]	0.011	0.011	0.011	0.01	0.01
Sulfate	24-Hour (µg/m^3)	8.0d	5.7[d]	5.8	--[b]	6.1
	State Standard	(0%)d	(0%)[d]	(0%)	(--)[b]	(0%)

Notes:
ppm = parts per million of air by volume
µg/m3 = micrograms per cubic meter
AAM = annual arithmetic mean
(#) = Number of days exceeding the federal or state standard
(%) = Percentage of samples exceeding the federal or state standard

a) Data obtained from ARB, all unmarked data from SCAQMD
b) Pollutant not monitored, data not available00
c) Less than 12 full months of data, may not be representative
d) PM10, SO2, Pb and Sulfates from Los Angeles monitoring station (Station No. 087) when not available for Station 88 (Pasadena)
e) The higher readings between the Pasadena and Los Angeles monitoring Station were utilized because the 2013 data from Pasadena monitoring station were marked as incomplete.

Sources:
South Coast Air Quality Management District - Historical Air Quality by Year, Data Tables 2011-2015 (www.aqmd.gov/home/library/air-quality-data-studies/historical-data-by-year)
California EPA (Air Resources Board) - Air Quality and Meteorological Information System (www.arb.ca.gov/aqmis2/aqdselect.php?tab=daily)

Laws, Ordinances, Regulations, and Standards (LORS)

EPA implements the federal Clean Air Act (CAA), a law that regulates air emissions from stationary and mobile sources. NAAQS were established under the CAA to regulate pollutants considered harmful to public health and the environment. Areas that are in attainment of the NAAQS are regulated under the Prevention of Significant Deterioration (PSD) program, while areas that are not in attainment of the NAAQS are regulated under the nonattainment NSR program. The NSR and PSD requirements apply to new construction or modification of industrial sources that emit air pollutants.

The ARB implements the California CAA which precedes the federal CAA and establishes stricter ambient air quality standards (AAQS). Each of the 35 local Air Pollution Control Districts in California has its own NSR program and issues permits for the construction and operation of stationary emission sources. Depending on the amount of pollutants that will be emitted from a source and the area designation for that pollutant, the source may be required to install Best Available Control Technology (BACT). In addition, sources may also be required to mitigate or "offset" the increases in emissions.

This Project is subject to SCAQMD rules and regulations. SCAQMD has the principal responsibility for developing plans to meet the NAAQS and CAAQS; implementing permit programs for the construction, modification, and operation of air pollution sources; and enforcing air pollution regulations for non-mobile sources. The nonattainment NSR program has also been delegated by EPA to SCAQMD and implemented through SCAQMD Regulation XIII.

Applicable Federal Regulations

Title 40 CFR, Part 52, Subpart A, Section 52.21 – Prevention of Significant Deterioration (PSD) of Air Quality

This subpart of the Code of Federal Regulations sets forth requirements when a significant increase of attainment air contaminants occurs at an existing major stationary source of criteria pollutants, or when a new facility is considered a major source. PSD applies when the region is in attainment with federal ambient air quality standards for a pollutant. In the South Coast Basin, attainment with federal air quality standards has been reached for CO and NO_2 and PM10. The Proposed Project is not expected to emit more than 250 tons per year for CO and NO_2 and 15 tons per year for PM10; therefore, not classified as a major source. PSD permitting for the Project is not required.

Title 40 CFR, Part 60, Subpart JJJJ - Standards of Performance for Stationary Spark Ignition Internal Combustion Engines; Subpart WWW – Standards of Performance for Municipal Solid Waste Landfills; Proposed Subpart XXX – Standards of Performance for Municipal Solid Waste Landfills That Commenced Construction, Reconstruction, or Modification on or After July 17, 2014.

These subparts are applicable to the Proposed Project. SCAQMD has been delegated the authority to implement and enforce these federal regulations. Under SCAQMD Regulation IX, these subparts were adopted and made part of the Rules and Regulations of the SCAQMD. The Proposed Project is expected to meet the standards set by SCAQMD Rules and Regulation and the implementation of BACT for new sources, SCAQMD Rule 431.1 - Sulfur content of gaseous fuels, Rule 1110.2 - Emissions from Gaseous and Liquid Fueled Engines, and Rule 1150.1 – Control of Gaseous Emissions from Municipal Solid Waste Landfills). Table 3.3-4 shows the comparison the applicable federal and SCAQMD standards.

Table 3.3-4 40 CFR Part 60 Applicable Emission Standards and Complementing SCAQMD Regulation

Federal Regulation	Type of Pollutant	Emission Standards	SCAQMD Regulation	Emission Standards
NSPS Subpart JJJJ (Landfill Gas Engines)	NO_X	150 ppmv @ 15% O_2	Rule 1110.2	11 ppmv @ 15% O_2
	CO	610 ppmv @ 15% O_2	Rule 1110.2	250 ppmv @ 15% O_2
	VOC	80 ppmv @ 15% O_2	Rule 1110.2	30 ppmv @ 15% O_2
NSPS Subpart WWW (Landfill)	$NMOC_a$	98% reduction efficiency or 20 ppmv as hexane @ 3% O_2	Rule 1150.1	98% reduction efficiency or 20 ppmv as hexane @ 3% O_2
Proposed NSPS Subpart XXXb (Landfill)	$NMOC_a$	98% reduction efficiency or 20 ppmv as hexane @ 3% O_2	Rule 1150.1	98% reduction efficiency or 20 ppmv as hexane @ 3% O_2

Notes:
ppmv: parts per million by volume
NMOC: Non-Methane Organic Compounds
EPA is proposing to establish a new NMOC emission threshold for requiring installation of a gas collection and control system (GCCS). The proposed 40 CFR 60 subpart XXX reduces the NMOC emissions threshold from 50 Mg per year to 34 Mg per year. The proposed NSPS will not affect Scholl Canyon Landfill since the landfill NMOC emissions exceed 50 Mg per year. SCAQMD Regulation IX currently does not include 40 CFR 60 Subpart XXX; however, Regulation IX is expected to include this subpart once it's adopted.

Title 40 CFR, Part 63, Subpart AAAA - National Emission Standards for Hazardous Air Pollutants: Municipal Solid Waste Landfills

This subpart establishes national emission standards for hazardous air pollutants for existing and new municipal solid waste landfills. To demonstrate compliance with this subpart, the facility must comply with the requirements of 40 CFR Part 60 Subpart WWW. As discussed previously, the Proposed Project is expected to comply with the subpart WWW; therefore, compliance with subpart AAAA is expected.

Title 40 CFR, Part 63, Subpart ZZZZ - National Emission Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines

This regulation establishes national emission and operating limitations for Hazardous Air Pollutant (HAP) emissions from stationary internal combustion engines. Compliance with this subpart is achieved by meeting the emission standards of 40 CFR Subpart JJJJ. Subpart JJJJ specifies that new area sources of HAPs comply with the Subpart by complying with the new source pollution standards of 40 CFR 60 Subpart JJJJ. As discussed in the above section, the proposed engines are expected to meet the emission standards of Subpart JJJJ; therefore, compliance with subpart ZZZZ is also expected.

Title 40 CFR, Part 70 – State Operating Permit Programs

The requirements of the operating permit program under this regulation apply to facilities that are classified as major sources or subject to certain NSPS requirements. The operating permit program implements Title V of the federal CAA and is carried out at the regional level under SCAQMD's Regulation XXX. All applicable federal performance standards, operating, monitoring, recordkeeping, and reporting requirements have to be issued for permits under this regulation.

A facility in SCAB is subject to Title V requirements if it has the potential to emit greater than 10 tons per year of NO_X or VOC, 100 tons per year of SO_X, 50 tons per year of CO, or 70 tons per year of PM10; 25 tons per year for combined HAPs or 10 tons per year for individual HAP.

Since the Scholl Canyon Landfill Power Project will exceed the thresholds above for NO_X and VOCs, a Title V application for this Project will be submitted to comply with this regulation. The resulting Title V permit may also incorporate operations from the adjoining landfill that are under the City of Glendale's control.

Applicable State Regulations

California Code of Regulations, Section 41700

This regulation prohibits the discharge of air contaminants from a facility in quantities that will negatively affect the health and safety of the public, businesses, or properties. The Project will be subject to permit conditions that ensure no adverse public health effects or nuisance will result from the facility.

Applicable Local Regulations

SCAQMD Rule 403 – Fugitive Dust

The purpose of this rule is to reduce PM emissions from anthropogenic (man-made) fugitive dust sources by requiring actions to prevent, reduce, or mitigate fugitive dust emissions. During the

construction phase of the Proposed Project, the following control measures as listed in Table 1 of Rule 403 will be taken to reduce the fugitive dust emissions:

- Apply sufficient amount of water to prevent the generation of visible dust plumes during demolition and earth-moving activities.
- Stabilize material while loading, transporting, and unloading to reduce fugitive emissions.
- Establish traffic and parking areas for construction activities by using road barriers.

SCAQMD Rule 407 – Liquid and Gaseous Air Contaminants

This rule limits CO emissions to 2,000 ppm and SO_X emissions to 500 ppm, averaged over 15 consecutive minutes. The proposed equipment will meet the CO limit. The proposed equipment is exempt from the SO_X limit of this rule because it complies with the sulfur content requirements of Rule 431.1 for gaseous fuels.

SCAQMD Rule 409 – Combustion Contaminants

This rule prohibits contaminant emissions of more than 0.1 grain per cubic foot of gas at 12 percent CO_2 at standard conditions, averaged over 15 consecutive minutes. Emissions from internal combustion engines are exempt from this rule, and the proposed engines and existing flares are expected to comply with the emission limits of this rule.

Rule 431.1 – Sulfur Content of Gaseous Fuels

This rule limits the sulfur content of landfill gas to less than 150 ppmv averaged over 24 hours, calculated as hydrogen sulfide (H_2S). A sulfur removal system will be installed to reduce the sulfur content of landfill gas fuel used in this Project to the levels below this limit; thus compliance with the rule is expected.

SCAQMD Regulation IX – Standards of Performance for New Stationary Sources

This regulation incorporates Title 40 CFR, Part 60 of the Code of Federal Regulations (CFR), and is applicable to all new, modified, or reconstructed sources of air pollution. Subparts JJJJ of this regulation apply to the proposed stationary engines. These subparts establish emission limits, monitoring, and test method requirements. Compliance with Subpart JJJJ will be achieved through the application of BACT and compliance with SCAQMD Rule 1110.2.

SCAQMD Rule 1110.2 – Emissions from Gaseous and Liquid-Fueled Engines

Rule 1110.2 sets emission standards for engines that combust 90 percent or more landfill gas based on the higher heating value of the fuels. The applicable standards for biogas engines are

11 ppmv NO_X, 30 ppmv VOC, and 250 ppmv CO (all at 15 percent O_2). Emission control systems such as the proposed selective catalytic reduction (SCR) and CO oxidization systems are needed in order for the proposed landfill gas engines to meet these emission standards.

Rule 1150.1 – Control of Gaseous Emissions from Municipal Solid Waste Landfills

This rule requires landfill gas control devices to be operated continuously to reduce methane by at least 99 percent by weight and NMOC by at least 98 percent by weight or reduce the outlet NMOC concentration to less than 20 ppmv, dry basis as hexane at 3 percent oxygen. If lean burn engines are utilized as the gas control units, the engines shall reduce the outlet methane concentration to less 3000 ppmv, dry basis, corrected to 15 percent oxygen. An initial source test for the proposed equipment will be required to demonstrate compliance with this rule.

SCAQMD Regulation XIII – New Source Review (NSR)

The SCAQMD regulatory framework includes two options for implementing new source review. Certain facilities included in the Regional Clean Air Market (RECLAIM) cap and trade program for NO_X and SO_X are subject to the new source review requirements of Regulation XX. Facilities that are not part of RECLAIM are subject to the NO_X and SO_X new source review requirements of Regulation XIII. New source review for VOC, CO and PM is administered through Regulation XIII for all facilities. The Proposed Project is to construct and operate a new landfill gas energy recover facility; therefore, the Proposed Project is exempted from the RECLAIM program. The Project is instead subject to the new source requirements of Regulation XIII for all criteria pollutants.

SCAQMD Rule 1303 – NSR Requirements: Best Available Control Technology (BACT)

Rule 1303(a) requires any new or modified source which results in an emission increase of any nonattainment air contaminant, any ozone depleting compound, or ammonia to meet the BACT requirement. BACT is the most stringent emission limitation or control technology which has been achieved in practice (AIP), is contained in any state implementation plan (SIP) approved by the USEPA, or is another technology that has been found to be technologically feasible and cost effective by the Air District. Table 3.3-5 provides a summary of recent BACT determination for the proposed equipment. The BACT determinations for NO_X, VOC, and CO for reciprocating internal combustion engines reflect compliance with emission standards in Rule 1110.2.

Table 3.3-5 BACT Determinations for Diesel and Landfill Gas Combustion Equipment

Equipment Type	Pollutant	BACT Emission Rate
Internal Combustion Engines	NO_X	11 ppmv at 15% O_2
	VOC	30 ppmv at 15% O_2
	CO	250 ppmv at 15% O_2
	PM10/2.5	0.066 g/bhp-hr
	SO_X	60 ppmv of sulfur content in the landfill gas
	NH_3 (Slip)	5 ppmv at 15% O_2

SCAQMD Rule 1303 – NSR Requirements: Air Quality Modeling

Rule 1303(b)(1) requires an analysis to demonstrate compliance with ambient air quality standards. An air quality dispersion analysis must be conducted using a mass emissions-based analysis or an approved dispersion model to evaluate the impacts of the Project.

SCAQMD Rule 1303 – NSR Requirements: Emissions Offsets

Rule 1303(b)(2) requires emission increases to be mitigated through one of several offset programs. For this Project, emission mitigation can be accomplished by Emission Reduction Credits (ERC) approved pursuant to Rule 1309, allocations from the Priority Reserve pursuant to Rule 1309.1 for essential public services, or allocations from the Offset Budget pursuant to Rule 1309.2 for small sources. Priority Reserve established to provide credits for specific priority sources, such as innovative technology, research operations, and essential public service. Similar to ERC, Priority Reserve credits are real, quantifiable, and permanent credits.

Since construction and operation of a landfill gas processing facility is considered to be an essential public service, Priority Reserve credits are expected to be granted for this Project pursuant to Rule 1309.1 for pollutants that exceed small source thresholds.

SCAQMD Rule 1401 – New Source Review of Toxic Air Contaminants (TACs)

Rule 1401 establishes allowable risk thresholds for permit units that emit TACs. Depending on the pollutant, the rule specifies limits for maximum individual cancer risk (MICR), cancer burden, and/or non-cancer acute and chronic Hazard Indices (HI and HC).

Emission controls, which are considered to be T-BACT, will be implemented for the proposed engines to minimize TAC emissions. Sources that include the utilization of T-BACT may be subject to a slightly less stringent MICR threshold that is equivalent to State standards for new sources.

SCAQMD Regulation XVII – Prevention of Significant Deterioration (PSD)

Pursuant to Rule 1704(a)(1) and (4), the Proposed Project is exempt from the requirement of PSD analysis per Rule 1703(a)(3) since construction and operation of a landfill gas processing facility is an essential public service facility and it is also categorized as a resource recovery project. Potential annual emissions of all criteria pollutants (NO_X, VOC, CO, SO_X, PM10 and PM2.5) are also below the PSD applicability thresholds of SCAQMD Regulation XVII and 40 CFR Part 52, Subpart A.

Regulation XXX – Title V

This regulation implements the operating permit requirements of Title V of the CAA as amended in 1990. U.S. EPA has delegated to SCAQMD implementation authority over the federal program through local regulations that are as stringent, if not more stringent, than the federal

regulations. Therefore, compliance with this regulation will result in compliance with the federal Title V program.

Scholl Canyon Landfill power generation facility will exceed the Title V applicability thresholds listed in this regulation for several pollutants; therefore, a Title V application will be submitted as part of the permitting process. The resulting title V permit may also incorporate operations from the adjoining landfill that are under the City of Glendale's control.

3.3.2 Air Quality Impact Analysis

Issues	Potentially Significant Impact	Less Than Significant Impact With Mitigation Incorporated	Less Than Significant Impact	No Impact
AIR QUALITY: **Would the project:**				
a) Conflict with or obstruct implementation of the applicable air quality plan?	☐	☐	☒	☐
b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?	☐	☐	☒	☐
c) Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?	☐	☐	☒	☐
d) Expose sensitive receptors to substantial pollutant concentrations?	☐	☐	☒	☐
e) Create objectionable odors affecting a substantial number of people?	☐	☐	☒	☐
f) Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutant(s)?	☐	☐	☐	☒

Significance Criteria

The significance criteria established by the local air pollution control district is used to evaluate this Project. Since the facility location is under SCAQMD jurisdiction, the air quality impacts from the Proposed Project will be compared with the following significance thresholds listed in Table 3.3-6. If the impacts equal or exceed any of the criteria, they may be considered significant.

Table 3.3-6 SCAQMD Air Quality Significance Thresholds

Mass Daily Thresholds		
Pollutant	**Construction**	**Operation**
NOx	100 lbs./day	55 lbs./day
VOC	75 lbs./day	55 lbs./day
PM10	150 lbs./day	150 lbs./day
PM2.5	55 lbs./day	55 lbs./day
SOx	150 lbs./day	150 lbs./day
CO	550 lbs./day	550 lbs./day
Lead	3 lbs./day	3 lbs./day
Toxic Air Contaminants (TACs) and Odor Thresholds		
TACs (including carcinogens and non-carcinogens)	Maximum Incremental Cancer Risk ≥ 10 in 1 million Cancer Burden > 0.5 excess cancer cases (in areas ≥ 1 in 1 million) Chronic & Acute Hazard Index ≥ 1.0 (project increment)	
Odor	Project creates an odor nuisance pursuant to SCAQMD Rule 402	
Ambient Air Quality Standards for Criteria Pollutants		
NO_2 1-hour average annual arithmetic mean	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 0.18 ppm (state) 0.03 ppm (state) and 0.0534 ppm (federal)	
PM10 24-hour average annual average	Increase of 10.4 µg/m^3 (construction) & 2.5 µg/m^3 (operation) 1.0 µg/m^3	
PM2.5 24-hour average	Increase of 10.4 µg/m^3 (construction) & 2.5 µg/m^3 (operation)	
SO2 1-hour average 24-hour average	0.25 ppm (state) & 0.075 ppm (federal – 99th percentile) 0.04 ppm (state)	
Sulfate 24-hour average	25 µg/m^3 (state)	
CO 1-hour average 8-hour average	SCAQMD is in attainment; project is significant if it causes or contributes to an exceedance of the following attainment standards: 20 ppm (state) and 35 ppm (federal) 9.0 ppm (state/federal)	
Lead 30-day Average Rolling 3-month average	1.5 µg/m^3 (state) 0.15 µg/m^3 (federal)	

Localized Significance Thresholds

The SCAQMD has also developed localized significance thresholds (LSTs) to assess the localized air quality impacts from construction and operation based on the project location and distance to the nearest sensitive receptor. LSTs are only applicable for NO_X, CO, PM10, and PM2.5.

SCAQMD has developed screening level emission rate thresholds for each source receptor area (SRA) in the region to aid in determining if a project may generate significant impacts to the localized air quality. These tables are intended to be used for a project with a size less than five acres. Projects with emissions that exceed the screening threshold may be subject to more complex analyses to determine the significance of their impact on air quality.

SCAQMD provides a lookup table for allowable emissions in pounds per day as a function of receptor distance from 25 to 500 meters and the size of the project. The size of the Proposed Project is larger than two acres; however, LST threshold for two acres project is used to provide a more conservative analysis. The nearest SRA is West San Gabriel Valley (SRA8) located at 752 S. Wilson Avenue in Pasadena. The nearest sensitive receptor is located approximately 843 meters from the emission sources. Table 3.3-7 shows the localized air quality significance threshold based on 500 meters receptor distance and a project size of two acres.

Table 3.3-7 SCAQMD Localized Air Quality Significance Thresholds at SRA8

Pollutant	Construction	Operation
NOx	175 lbs./day	175 lbs./day
CO	7,957 lbs./day	7,957 lbs./day
PM10	160 lbs./day	39 lbs./day
PM2.5	82 lbs./day	20 lbs./day

a) Conflict with or obstruct implementation of the applicable air quality plan?

Less Than Significant Impact

Impact Discussion

The Proposed Project is located in the Los Angeles County, and is under the jurisdiction of the SCAQMD. As shown in Table 3.3-2, the South Coast Air Basin (SCAB) is designated as non-attainment for both federal and state ozone standards. One-hour ozone is classified under state standards as extreme non-attainment. 8-hour ozone is classified under federal and state standards as extreme non-attainment. The SCAB is classified as non-attainment for State PM10 standard and as non-attainment for both federal and state PM2.5 standards. NO_2, CO, and SO_2 are considered to be in attainment by the state and unclassified/attainment by EPA. Additionally, the basin is considered to be in unclassified/attainment with federal PM10 standards.

The SCAQMD is the agency responsible for attaining timely compliance with federal standards within the Los Angeles County portion of the South Coast Air Basin. The Air District is responsible for developing those portions of the SIP and AQMP that deal with certain stationary and area source controls in cooperation with the transportation planning agencies (TPAs), the

development of transportation control measures (TCMs). ARB is responsible for submitting the SIP to USEPA.

The Project will be required to comply with all applicable District rules and regulations. The SCAQMD rules and regulations that result from the SCAQMD air quality attainment planning process specify the emissions control and offset requirements for new sources. The Proposed Project will use BACT to control the project's emissions. In addition, the operational emissions of NO_X and VOC are proposed by the proponent to be offset through the allocations from the SCAQMD Priority Reserve account.

To analyze the impact of the Proposed Project to the national and state ambient air quality, criteria pollutant emissions from construction activity of the project and operating the proposed power plant were quantified.

Construction Impacts

Construction Impacts Due to Earth Moving Activity

Construction of the Proposed Project will include the removal and relocation of existing buildings and tanks, landfill gas piping system, and power lines. The onsite construction activities will consist of installing electrical generating units (engines), LFG treatment system, and other buildings, such as office, warehouse, etc.

Emissions from construction activity were calculated using CalEEMod version 2016.3.1. CalEEMod calculates both the daily maximum and annual average emissions for criteria pollutants and annual greenhouse gases (GHG). The model calculates emissions caused by demolition, site preparation, grading, building, coating and paving activities from the following sources:

- Off-road construction equipment
- Fugitive dust from material movement in site preparation and grading, demolition, and vehicle trips
- On-road mobile equipment associated with workers, vendors, and hauling
- VOC emissions associated with architectural coating

For this Project, the model parameters provided in Table 3.3-8 were used to estimate construction emissions. CalEEMod default factors were used for other input parameters such as trips, mileage, and VOC coatings content.

Table 3.3-8 CalEEMod Input Parameters

Input Parameters Type	Specification
Project Location:	Glendale
Land Use Type:	General Light Industry
Total Building Size (est.):	5,500 ft^2 [a]
Construction Schedule (5 days/week working schedule):	
Demolition:	23 days
Site Preparation:	20 days
Grading:	45 days
Building Construction:	195 days
Paving:	20 days
Architectural Coating:	12 days
Dust from Material Movement:	
Total Acres Graded (Site Preparation):	2 acres
Total Acres Graded (Grading):	3 acres
Material Exported during Grading:	14,000 cubic yard[b]
Distance of hauling trip (round trip):	1,400 feet (0.26 miles)[b]
Demolition:	
Amount of material demolished (est.):	24,664 ft^2
Construction Vehicles Trips[c]:	
Demolition:	10 worker trips/day, 5 vendor trips/day, and 112 hauling trips
Site Preparation:	10 worker trips/day and 10 vendor trips/day
Grading:	10 worker trips/day, 10 vendor trips/day, and 875 hauling trips
Building Construction:	10 worker trips/day and 10 vendor trips/day
Paving:	18 worker trips/day
Architectural Coating:	20 worker trips/day and 3 vendor trips/day[d]
Architectural Coating:	
Coated Interior Area:	8,250 ft^2
Coated Exterior Area:	2,750 ft^2
Construction Mitigation:	
Utilize Tier 2 or newer for off-road construction equipment. Water disturbed area three times per day to minimize fugitive dust (PM10 and PM2.5) emissions.	
Note: a) The total building size of 18,000 ft^2 includes all structures will be constructed on the facility site. One office and one warehouse building are the only occupied buildings, which total size is less than 2,000 ft^2. b) Although CalEEMod calculated fugitive emissions from the export of soil offsite to the neighboring landfill, the export of soil and resulting emissions displace what would otherwise result from the import of landfill cover from offsite sources. c) The worker vehicles reflect a mix of light duty autos and light duty trucks. The vendor vehicles reflect a mix of medium and heavy duty trucks. The hauling vehicles include heavy duty trucks. d) The quantity of 3 large truck and 20 cars during architectural coating phase include vehicle trips due to commissioning activity of the electrical generating equipment.	

The Proposed Project will also include construction of natural gas and water pipelines. The natural gas pipeline will be constructed to connect the facility to the existing Southern California

Gas company pipeline system located at the eastern end of Scholl Canyon Drive. The water line will be connected to two fire hydrants located at the western end of Scholl Canyon Golf and Tennis Club. The air quality impacts of these pipelines are negligible because of the following reasons:

- Pipelines will be located above ground except for at road crossings; therefore, minimal excavation activity will be expected.
- Pipelines are short distance (3,500 feet for natural gas pipeline and 5,280 feet for water pipeline).
- No access roads will be built for these pipelines construction.
- Disturbance due to moving vehicles will be minimal because of slow construction vehicle speeds and surrounding vegetation.

No transmission lines will be constructed for the Proposed Project, in effect of existing transmission lines will be utilized to connect the electric generating equipment. CalEEMod model outputs are included in Appendix A.1.

Construction Impacts Due to Landfill Gas Combustion

In addition to emissions due to earth moving activity and building construction, emissions due to landfill gas combustion in the nearby flares will contribute to the air quality impact during construction phase of the Project

The majority of landfill gas produced by the Scholl Canyon Landfill is currently piped and combusted in existing boilers at Glendale Water and Power's (GWP) Grayson Power Plant. The existing flares at the landfill also combust some landfill gas when the boilers are not operating due to an emergency or a maintenance situation. For the baseline analysis, only an average emissions of boilers as reported in SCAQMD Annual Emission Reporting program for 2011 and 2015 were used to estimate the baseline emissions for the construction activity. The Boiler emission inventory is included in the Appendix A.2.2.

During the 15 – 18-month construction phase of Scholl Canyon Landfill Power Plant, the system piping landfill gas to GWP Grayson Power plant will be demolished; therefore, landfill gas will be combusted in the existing flare system at Scholl Canyon to control fugitive VOC and methane emissions.

There are ten primary flares and two backup flares at the Scholl Canyon Landfill facility. These flares are currently permitted by SCAQMD and, according to the permit, are owned and operated by LA County Sanitation District (LACSD). The permit allows for a maximum of 860 scfm landfill gas to be burned in each flare and 8,600 scfm of landfill gas to be burned in the entire system. Based on the current landfill gas production of 5,000 scfm, it is assumed that five flares

will combust a maximum capacity of 860 scfm of landfill gas per flare and one flare will combust the remaining 700 scfm of landfill gas during construction of the facility.

Flare emissions were calculated based on the average of emission factors reported on SCAQMD Annual Emission Reports (AER) for reporting year 2010 to 2014 and the results of source test conducted in May 2015. Table 3.3-9 summarizes the net emissions of the Project during construction phase, including the use of the flares, and Table 3.3-10 compares the net emissions to the mass daily significance threshold for the construction activity. Flare emission inventory is included in the Appendix A.2.

Table 3.3-9 Overall Air Quality Impact Due to the Construction of the Project

Pollutant	CalEEMod Output (Earthmoving Activity) (lb/day)	Flare Emissions During Construction (lb/day)	Less: Existing Baseline Daily Landfill Gas Combustion Emissions (lb/day)	Net Emission Increase [Decrease] (lb/day)
NO_X	41	96	84	53
CO	33	9	60	[18]
VOC	4.5	9	34	[20]
PM10	8.2	46	68	[14]
PM2.5	4.9	46	68	[18]
SO_X	0.05	37	12	25

Table 3.3-10 Comparison of Overall Construction Emissions with Significance Thresholds

Pollutant	Net Construction Emissions (lb/day)	SCAQMD Mass Daily Significance Thresholds for Construction Emissions (lb/day)	Exceed the Threshold (yes/no)
NO_X	53	100	NO
CO	[18]	550	NO
VOC	[20]	75	NO
PM10	[14]	150	NO
PM2.5	[18]	55	NO
SOX	25	150	NO

To comply with SCAQMD Rule 403, actions will be taken to minimize fugitive emissions due to construction activities. As listed in Table 1 of this rule, the following control measures will be conducted to minimize fugitive dust emissions during construction for the Proposed Project:

a) Apply sufficient amount of water to prevent the generation of visible dust plumes during demolition and earth-moving activities.

b) Stabilize material while loading, transporting, and unloading to reduce fugitive emissions.

c) Establish traffic and parking areas for construction activities by using road barriers.

Based on the required Rule 403 actions taken to minimize fugitive emissions during construction activity and calculated emissions summarized in tables 3.3-9 and 3.3-10, the overall air quality impact of construction activity of the Project would be below the applicable SCAQMD regional mass emissions thresholds of significance. The Project would also be in compliance with applicable SCAQMD rules and regulations. Construction of the Project would not conflict with or obstruct implementation of the air quality plan and potential impact would be less than significant.

Operation Impacts

Operational emissions will come mainly from stationary equipment, but some indirect emissions such as those from the daily transportation of employees, visitors, contractors and goods.

Emissions from stationary equipment were calculated using SCAQMD BACT standards, manufacturer guaranteed emission factors, laboratory and source test data, and default emission factors provided by USEPA AP-42 or ARB. The maximum daily emissions were then compared to SCAQMD mass daily significance thresholds.

The emissions produced by the occupants of the facility were estimated using the California Emissions Estimator Model (CalEEMod) version 2016.3.1.

Operation Impacts due to Facility Occupancy

CalEEMod calculates indirect operational emissions caused by the occupancy of the facility, which include electricity and water consumption, as well as on-road mobile emissions. A total of six employees will be responsible for operations and routine maintenance of the facility and will generate on-road commute emissions in addition to the emissions from material deliveries to the site. Table 3.3-11 summarizes the daily emissions caused by these six employees in operating the facility.

Table 3.3-11 Criteria Pollutant Emission Summary – Facility Occupancy

Pollutant	Area Usage[a] (lbs./day)	Energy Usage (lbs./day)	Mobile Usage (lbs./day)	Total Emissions (lbs./day)
NO_X	0.00001	0.0268	0.0164	0.043
CO	0.00057	0.0225	0.0451	0.068
VOC	0.1229	0.0026	0.0031	0.128
PM10	0	0.0020	0.0126	0.015
PM2.5	0	0.0020	0.0035	0.005
SO_X	0	0.0002	0.0002	0.0003

Notes:
a) Area usages include architectural coating, consumer products, and landscaping.

The daily indirect emissions caused by employees operating the facility are added to plant operations emissions. However, as shown in table 3.3-11, these daily emissions were estimated to be less than one pound and the contribution to the overall operational emissions are expected to be negligible. CalEEMod model outputs are included in Appendix A.1.

Operation Impacts due to Stationary Equipment

The proposed Project is a 12 MW power generation facility, which consists of reciprocating internal combustion engines (RICE) as the electrical generating equipment. The Proposed Project includes a landfill gas siloxane removal system that would be regenerated on site, and a new enclosed flare as the emission control of the waste gas from the siloxane removal system. The proposed flare is very small and will be in service only on an intermittent basis because the waste gas is only produced during periodic regeneration process of the siloxane removal system. The waste gas is expected to contain low concentrations of siloxanes and other organic compounds, similar to the landfill gas that is combusted in the engines, and also in the existing permitted flares that will continue to be used as backup gas incineration devices. In order to incinerate the low heating value waste gas, the flare will be supplemented with a small amount of landfill gas. It is expected that the emissions from this flare are primarily due to the supplemental landfill gas combustion.

Based on the fact that the flare will be fueled by landfill gas and it will be utilized as needed, its emissions will be analyzed as part of the emissions from the existing flares. The existing flares operate will operate intermittently to combust excess landfill gas being produced that is not utilized by the electrical generating units, should one or more generating units be temporarily inoperable.

Landfill gas production at the Scholl Canyon Landfill is predicted to decrease overtime. Natural gas may be utilized to augment combustion if landfill gas production is not enough to fully operate the engines. However, due to the fact natural gas augmentation will occur in the future and natural gas is considered to be a cleaner fuel than landfill gas, it is prudent to analyze the air quality impacts of the proposed engines based on operating emissions using 100 percent landfill gas as the worst-case scenario.

Reciprocating Internal Combustion Engines

Reciprocating Internal Combustion Engine (RICE) technology is proposed for the Project and the City of Glendale is considering the use four GE Jenbacher Model J 620 GS-16 engines. Each engine has the ability to produce 3,018 kilowatts (KW) of power at 39.5 efficiency under ISO conditions. At 100 percent operating load, each engine is estimated to be able to combust 1,383 scfm. With the landfill gas production of 5,000 scfm, small amounts of natural gas will augment the landfill gas to increase intake fuel heating value and to allow all four engines to be operated at 100 percent capacity when needed.

The air quality impacts of the proposed RICE have been analyzed based on 100 percent landfill gas combustion. The following emission factors were used to estimate the criteria pollutant emissions from the engines:

- 11 ppmv at 15 percent O_2 for NO_X and 30 ppmv at 15 percent O_2 emission factors were used based on the required emission limits pursuant to SCAQMD Rule 1110.2.

- The proposed engines will be equipped with oxidation catalysts to reduce the CO emissions. Based on the manufacturer data, uncontrolled CO emission of the engine is 250 ppmv at 15 percent O_2. While CO emission reductions of at least 90 percent can be expected due to the use of an oxidization catalyst, the emissions inventory and air quality analysis assumes a much lower control efficiency and a controlled CO concentration of 130 ppmv at 15 percent O_2.

- The engine manufacturer PM10/2.5 emission rate of 0.066 g/bhp-hr, based upon SCAQMD BACT guidance.

- The SO_X emission factor was estimated based on 60 ppmv of sulfur content of landfill gas measured in H_2S as determined by SCAQMD as BACT.

The proposed engines will be equipped with SCR combined with oxidation catalysts to meet the SCAQMD emission standards. However, uncontrolled emissions can occur during startup, commission, and maintenance activities. To account for the uncontrolled emission rates and estimate maximum daily emissions, the following daily operating schedule is assumed:

- Three engines run 22 hours in normal operation and two hours in startup/shutdown mode.
- One engine runs 12 hours in normal operation, ten hours in maintenance, and two hours for startup/shutdown.

It is unlikely to have more than one engine in maintenance in the 24-hour period. Additionally, this type of operation will likely be limited to commissioning of the Project to ensure the engines and fuel condition skids are operating properly prior to the loading of emission control catalyst.

To comply with SCAQMD Regulation XIII, Priority Reserve credits will be allocated to offset the emission increases of the Proposed Project.

Table 3.3-12 summarizes the daily maximum emissions of the proposed engines, the quantity of Priority Reserve credits to offset the emission increases, and the comparison to the SCAQMD screening level mass-emission significance thresholds. With the mitigation of emissions that occurs through SCAQMD Rule 1303, net emissions of NO_X, VOC, PM10 and SO_X will be below SCAQMD daily mass emission significance thresholds. SCAQMD does not provide Priority Reserve offsets for CO or PM2.5 emissions. As such, daily emissions of these two pollutants are above the SCAQMD daily screening level mass emission significance thresholds. For these two pollutants, a more complex significance determination is made to demonstrate that emissions of CO and

PM2.5 are also below significance thresholds that are based upon net ambient pollutant concentrations. The emission Inventory for the proposed RICE is included in Appendix A.2.1.

Table 3.3-12 Criteria Pollutant Emission Summary – GE J 620 GS-16

Pollutant	Total Proposed Project (Engines Daily Max. Emissions (lbs./day)	Offset Allocations from the SCAQMD Priority Reserve (lbs./day)	Remaining Scholl Canyon Power Generating Facility Emissions (lbs./day)	SCAQMD Mass Daily Significance Thresholds for Operation Emissions (lbs./day)	Exceed Significance Threshold (yes/no)
NO_X	165	165	0	55	NO
CO	919	0	919	550	YES
VOC	114	114	0	55	NO
PM10	58	58	0	150	NO
PM2.5	58	0	58	55	YES
SO_X	81	81	0	150	NO

Without the Priority Reserve credits, NO_X, CO, PM2.5, and VOC emissions of the Proposed Project would exceed the significance thresholds. Air dispersion modeling was conducted to analyze further impact of pollutants emissions. Air dispersion modeling was not conducted for VOC since there is no State or Federal ambient air quality standards. The data inputs for the emission modeling are provided in table 3.3-13.

Table 3.3-13 AERMOD Input Parameters

Input Parameters Type	Specification
Engines Exhaust Information:	
Stack Height:	40 ft.
Stack Diameter:	2 ft.
Stack Temperature:	797 °F
Exhaust Flow (Wet):	481,020 SCFH

Table 3.3-14 summarizes the ambient air quality impacts from operating the proposed engines. As discussed in section 3.3.1, the background concentration is based upon the highest values recorded for the years 2011 through 2015. Model results demonstrate that the Project will not cause an exceedance of NO_2, CO, or PM2.5 ambient air quality standards. PM10 and PM2.5 background ambient concentrations already exceed federal or state standards, but the increase in concentrations resulting from the Proposed Project are below allowable thresholds established by SCAQMD. Detailed model input and output information is provided in Appendix A.3.

Table 3.3-14 AERMOD Model Output

Pollutant	Averaging Period	Project Impact	Background[a]	New Ambient	Limiting Standard	Type of Standard
NO_2[b]	1-HR	0.030 ppm	0.090 ppm	0.12 ppm	0.18 ppm	CAAQS
NO_2[b]	1-HR (98th %)	0.014 ppm	0.073 ppm	0.086 ppm	0.10 ppm	NAAQS
NO2[c]	Annual	0.00015 ppm	0.022 ppm	0.022 ppm	0.03 ppm	CAAQS
CO	1-HR	0.0145 ppm	3.1 ppm	3.24 ppm	20 ppm	CAAQS
CO	8-HR	0.0344 ppm	2.2 ppm	2.23 ppm	9 ppm	CAAQS
PM10	24-HR	1.07 ug/m3	88 ug/m3	89.07 ug/m3	Allowable increase of 2.5 ug/m3	CAAQS/SCAQMD Allowable Increase
PM10[d]	24-HR (6th highest over 5 years)	0.065 ug/m3	88 ug/m3	88.65 ug/m3	150 ug/m3	NAAQS
PM10	Annual	0.118 ug/m3	35.4 ug/m3	35.52 ug/m3	Allowable increase of 1.0 ug/m3	CAAQS/SCAQMD Allowable Increase
PM2.5	24-HR	1.07 ug/m3	48.5 ug/m3	49.57 ug/m3	Allowable increase of 2.5 ug/m3	CAAQS/SCAQMD Allowable Increase
PM2.5	24-HR (8th highest)	0.35 ug/m3	29.80 ug/m3	30.15 ug/m3	35 ug/m3 Below SIL of 1.2 ug/m3	NAAQS EPA Significant Impact Level (SIL)
PM2.5[e]	Annual	0.118 ug/m3	11.95 ug/m3	12.07 ug/m3	Below SIL of 0.3 ug/m3 Allowable increase of 1.0 ug/m3	EPA Significant Impact Level (SIL) CAAQS/SCAQMD Allowable Increase
SO_2	1-HR	0.0026 ppm	0.0126 ppm	0.0152 ppm	0.25 ppm	CAAQS
SO_2[f]	1-HR (99th %)	0.0014 ppm	0.0063 ppm	0.0077 ppm	0.075 ppm	NAAQS
SO_2	24-HR	0.0006 ppm	0.0054 ppm	0.0060 ppm	0.04 ppm	CAAQS

Notes:

a) The background values are based on the highest concentrations monitored during 2011 through 2015, except the year 2013, at West San Gabriel Valley (Pasadena) monitoring station. In 2013, the higher readings between Pasadena and Central Los Angeles monitoring station (Station No. 087) were used because the 2013 Pasadena background data were marked incomplete. Additionally, the background values of PM10 and SO_2 were based on the readings from the Central Los Angeles monitoring station since the Pasadena monitoring station did not record any background data for those pollutants.

b) The NO_2 1-hour modeling was refined using the AERMOD Ambient Ratio Method Version 2 (ARM2) option.

c) The NO_2 annual modeling was refined using the AERMOD ARM option, which assumed an 80% conversion factor of NO_X to NO_2.

d) The PM10 24-hour modeled values were based on the maximum 6th highest concentration over 5 years period.

e) The PM2.5 24-hour modeled values were based on the 8th highest concentration averaged over 5 years period with the background concentrations of 98th percentile of 24-hour data averaged over 5 years period.

Pollutant	Averaging Period	Project Impact	Background[a]	New Ambient	Limiting Standard	Type of Standard

f) The SO_2 1-hour modeled values were based on the 4th highest concentration averaged over 5 years period with the background concentrations of 99th percentile of 1-hour data averaged over 5 years period.
g) There are receptors surrounding the facility at lower and higher elevations than the emission sources. The model was run on non-default option (flat terrain) on all receptors at lower elevations; and a default option (complex terrain) was selected to on receptors above the emission sources base elevation. The project impact values shown in the table above is the highest values from both model runs.

Figures 3.3-1A through L show the maximum concentration readings for criteria pollutants outside the landfill property boundary.

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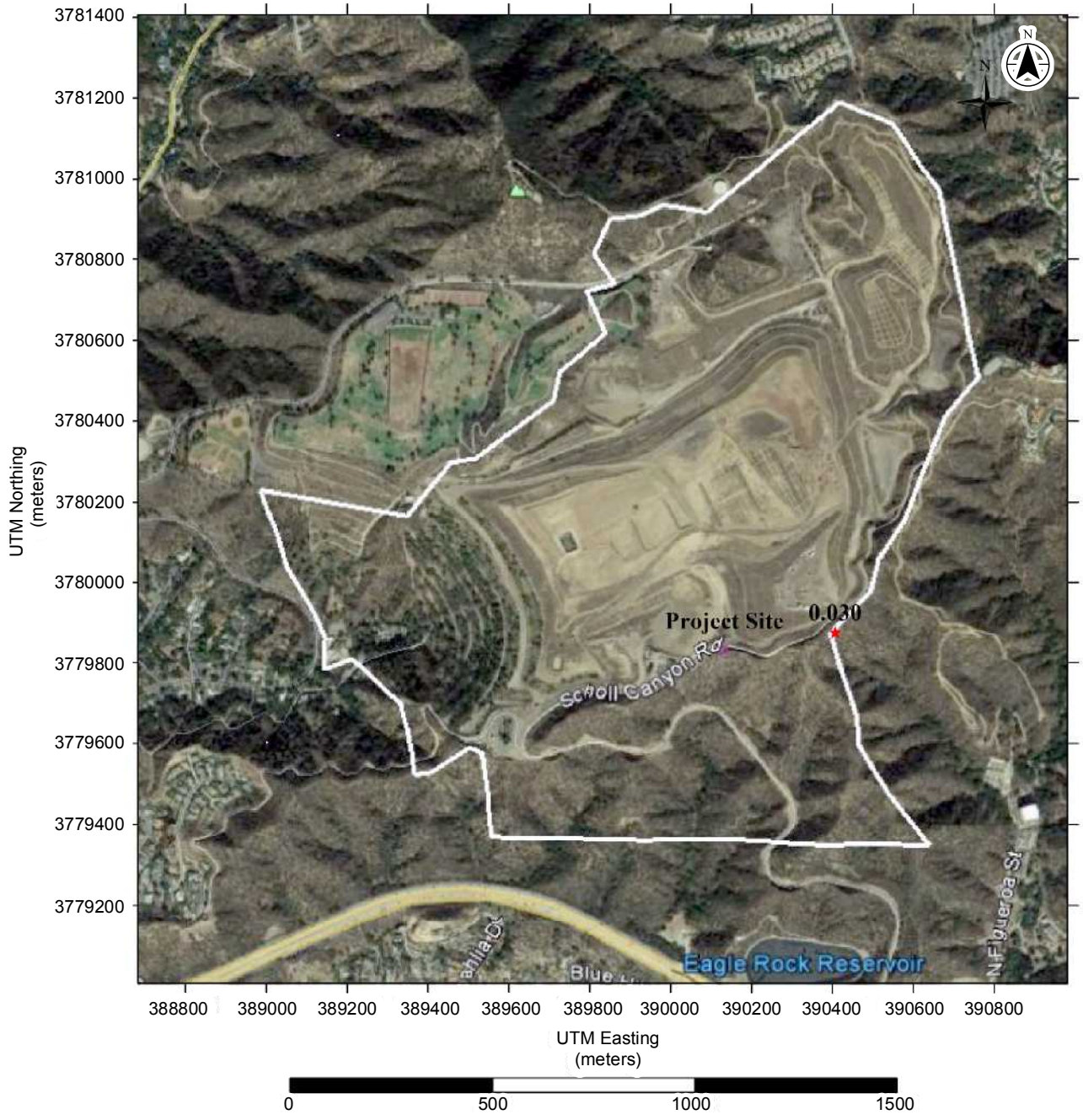

Modeling performed by Montrose Air Quality Services

Stantec

Project Location
Glendale, CA

Project No.: 205712300
Prepared by JT on 2017-07-21
Technical Review by CH on 2017-07-21

Client/Project
City of Glendale Water and Power
Biogas Renewable Generation Project
Initial Study/Mitigated Negative Declaration

Figure No.
3.3-1A

Title
AERMOD Output for 1st highest 1-hourly NO_2 Concentrations (ppm)

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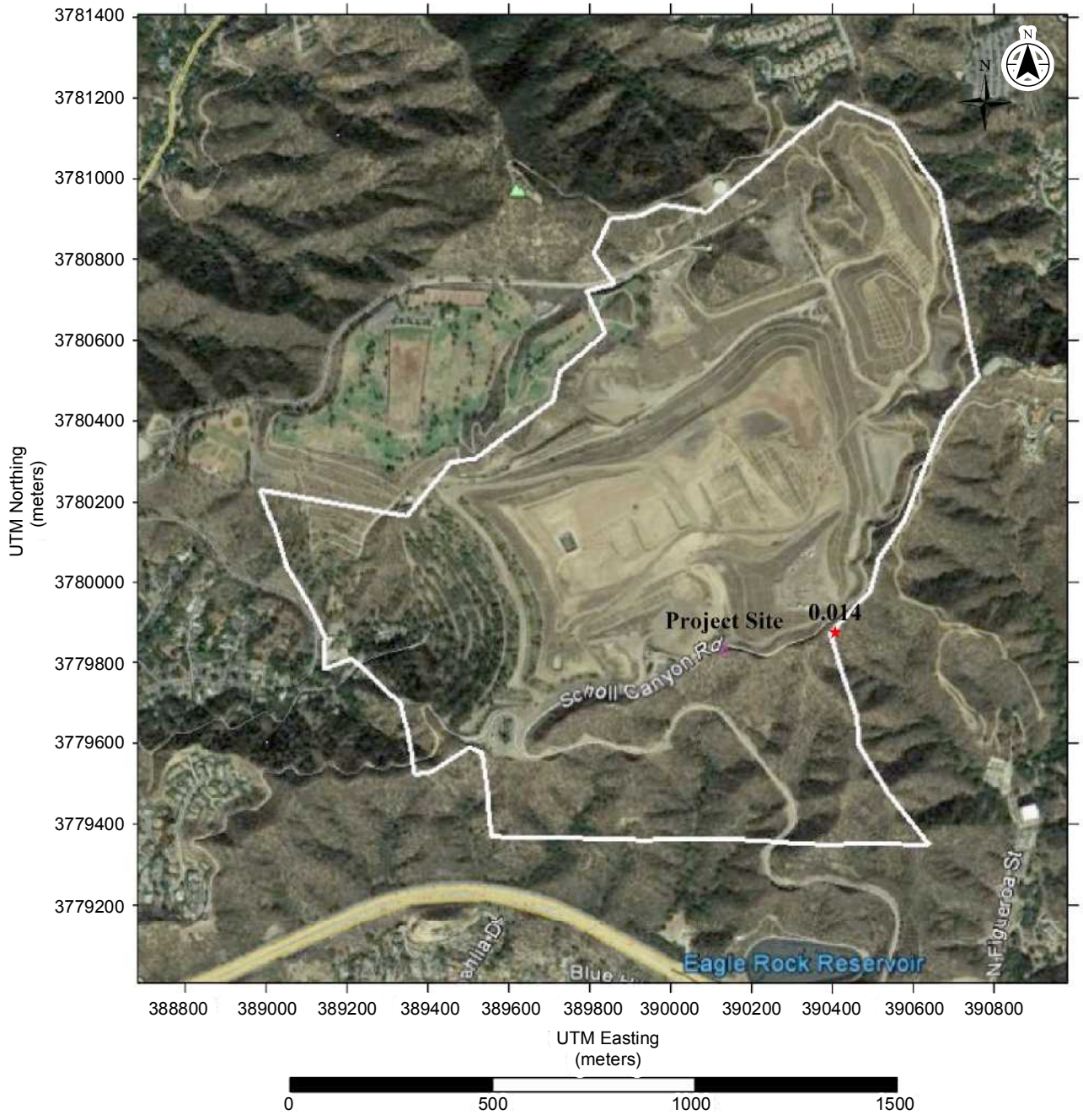


Modeling performed by Montrose Air Quality Services

Stantec

Project Location
Glendale, CA

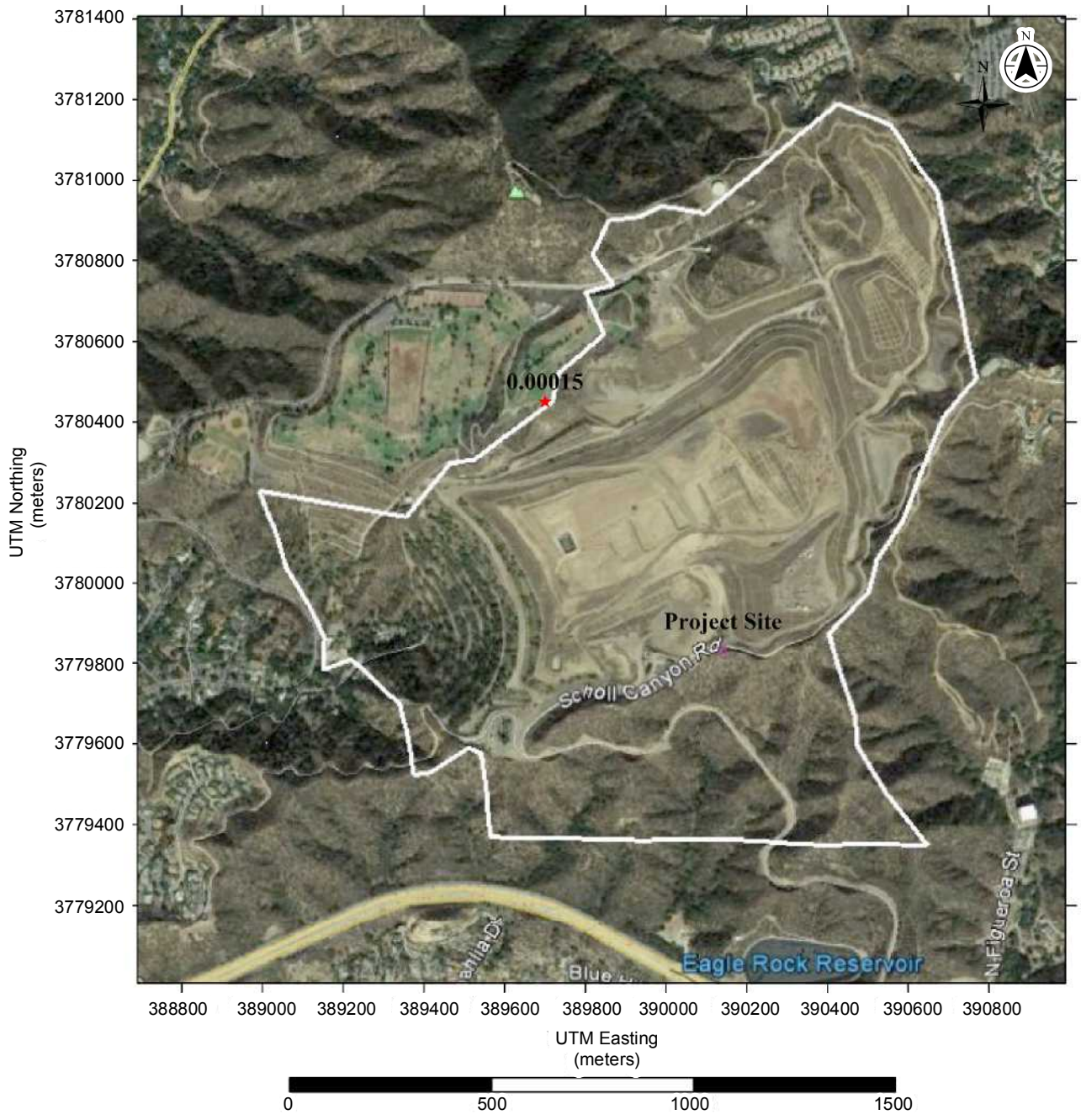
Project No.: 205712300
Prepared by JT on 2017-07-21
Technical Review by CH on 2017-07-21

Client/Project
City of Glendale Water and Power
Biogas Renewable Generation Project
Initial Study/Mitigated Negative Declaration

Figure No.
3.3-1B

Title
AERMOD Output for 8th highest 1-hourly NO_2 Concentrations (ppm)

C:\Users\jtrook\Desktop\205712300\mxd\20170721\Fig3_3_2C_AERMOD_Annual_NO2_20170723.mxd Revised: 2017-07-23 By: jtrook



Modeling performed by Montrose Air Quality Services

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Project Location
Glendale, CA

Project No.: 205712300
Prepared by JT on 2017-07-21
Technical Review by CH on 2017-07-21

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Figure No.
3.3-1C

Title
AERMOD Output for Annual NO_2 Concentrations (ppm)

C:\Users\jtrook\Desktop\205712330\mxd\20170721\Fig3_3_2D_AERMOD_1st_Highest_1hr_CO_20170723.mxd Revised: 2017-07-23 By: jtrook

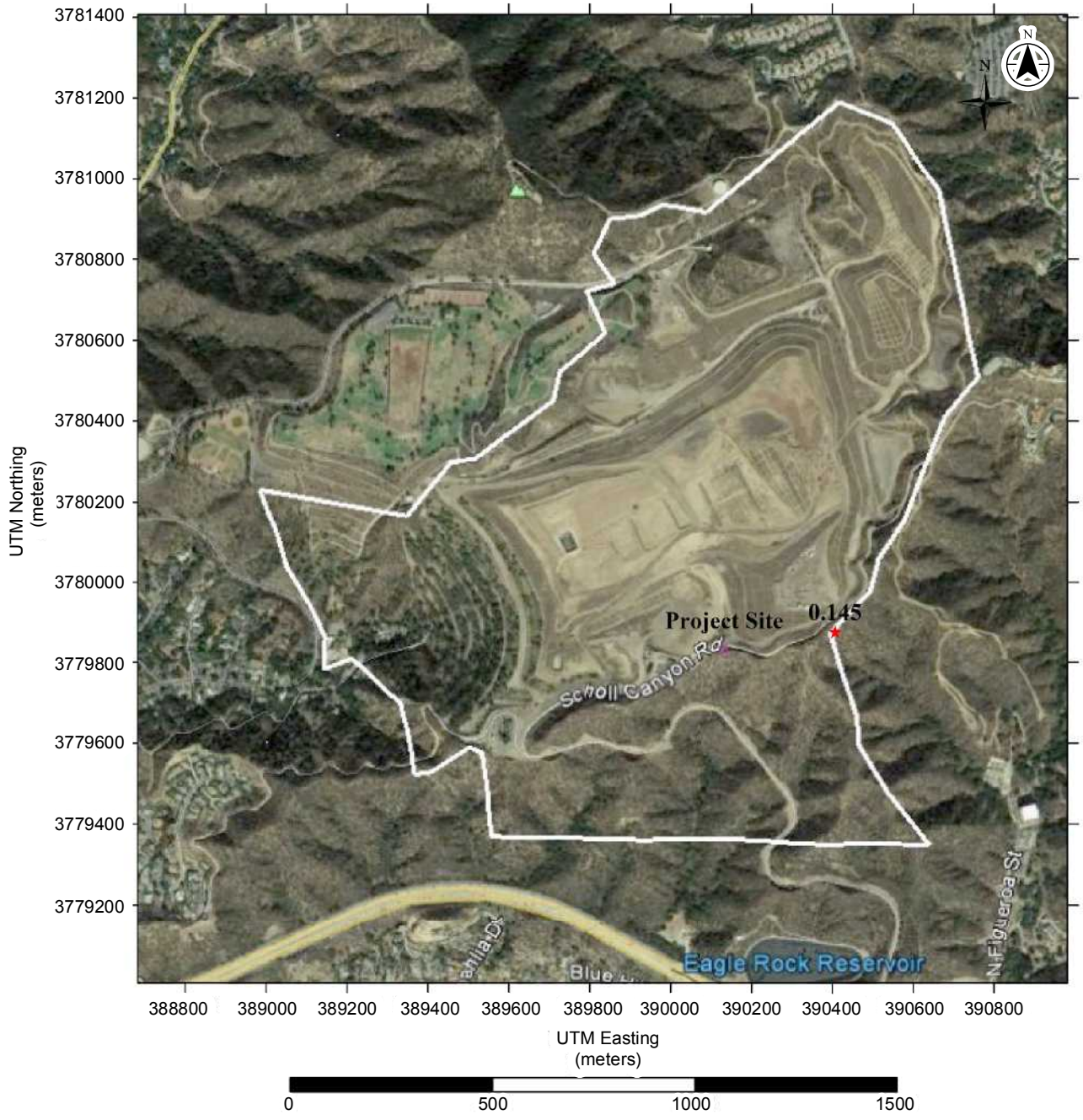

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Figure No.
3.3-1D

Title
AERMOD Output for 1st highest 1-hourly CO Concentrations (ppm)

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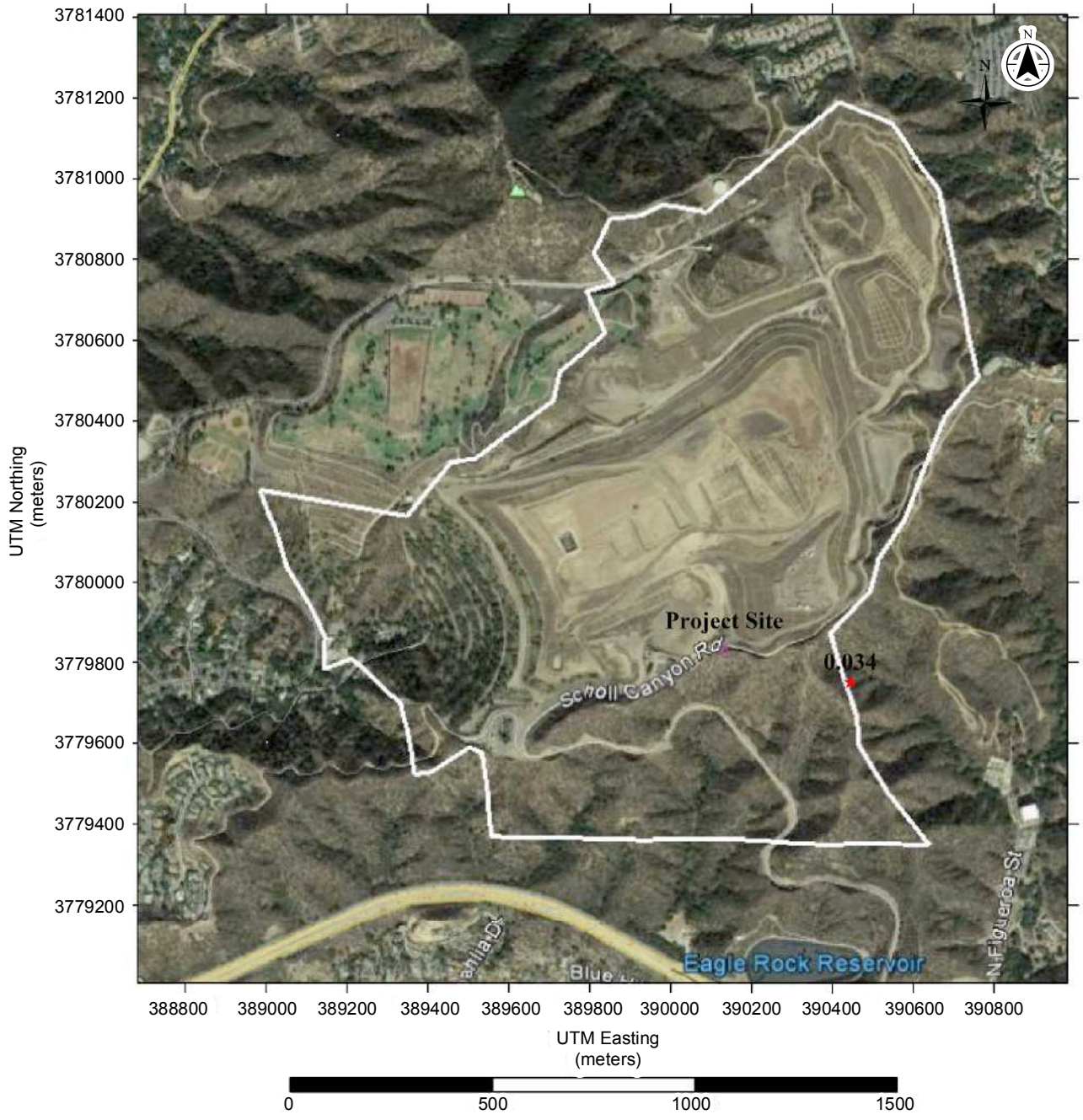

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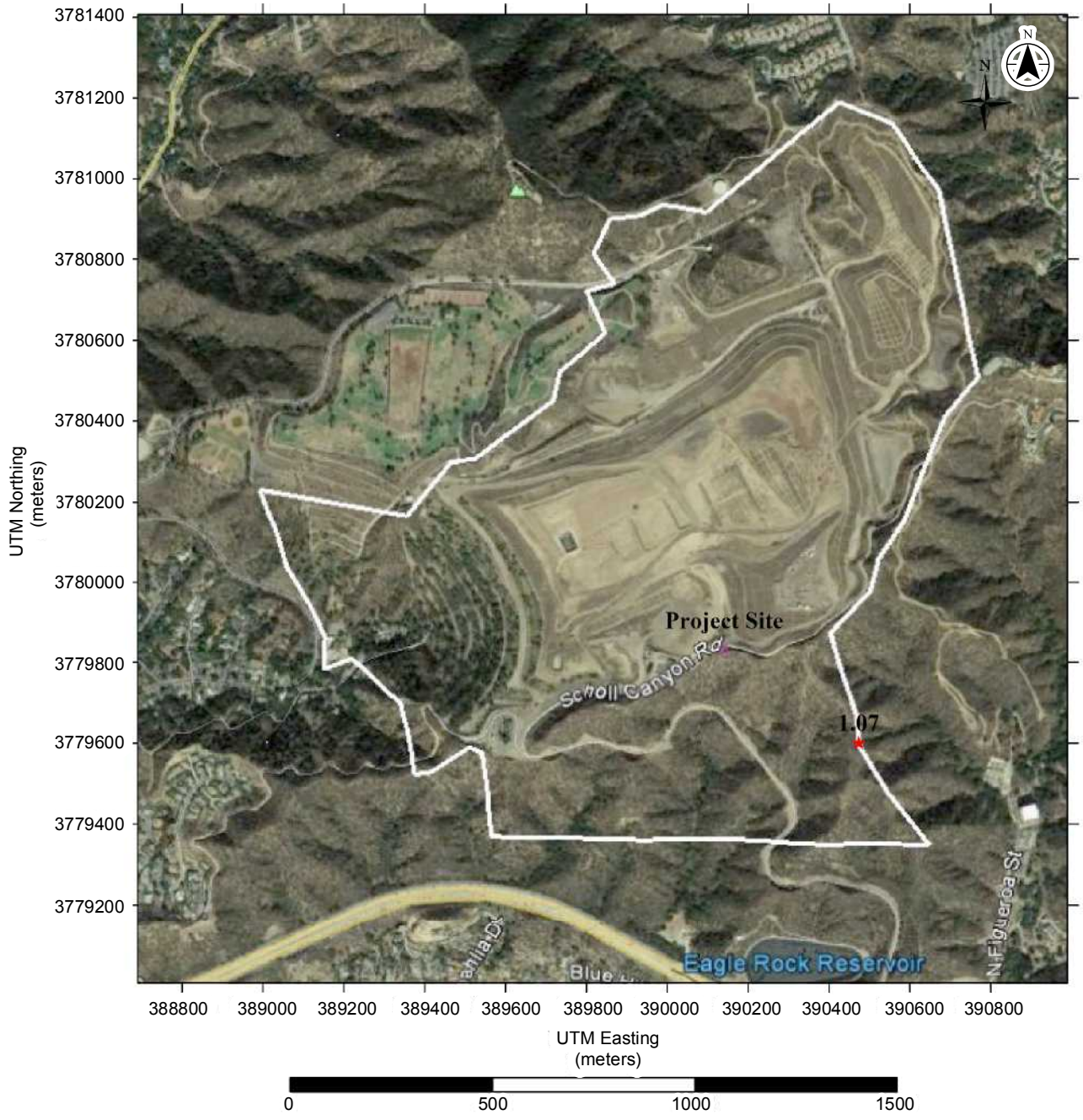
Figure No.
3.3-1E

Title
AERMOD Output for 1st highest 8-hourly CO Concentrations (ppm)

C:\Users\jhrook\Desktop\205712330\mxd\20170721\Fig3_3-2F_AERMOD_1st_highest_24hr_PM10_25_20170723.mxd Revised: 2017-07-23 By: jhrook



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Glendale, CA

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Figure No.
3.3-1F

Title
AERMOD Output for 1st highest 24-hour PM10/2.5 Concentrations (ug/m³)

C:\Users\jtrook\Desktop\205712300\mxd\20170721\Fig3_3_2G_AERMOD_6th_highest_24hr_PM10_25_20170723.mxd Revised: 2017-07-23 By: jtrook

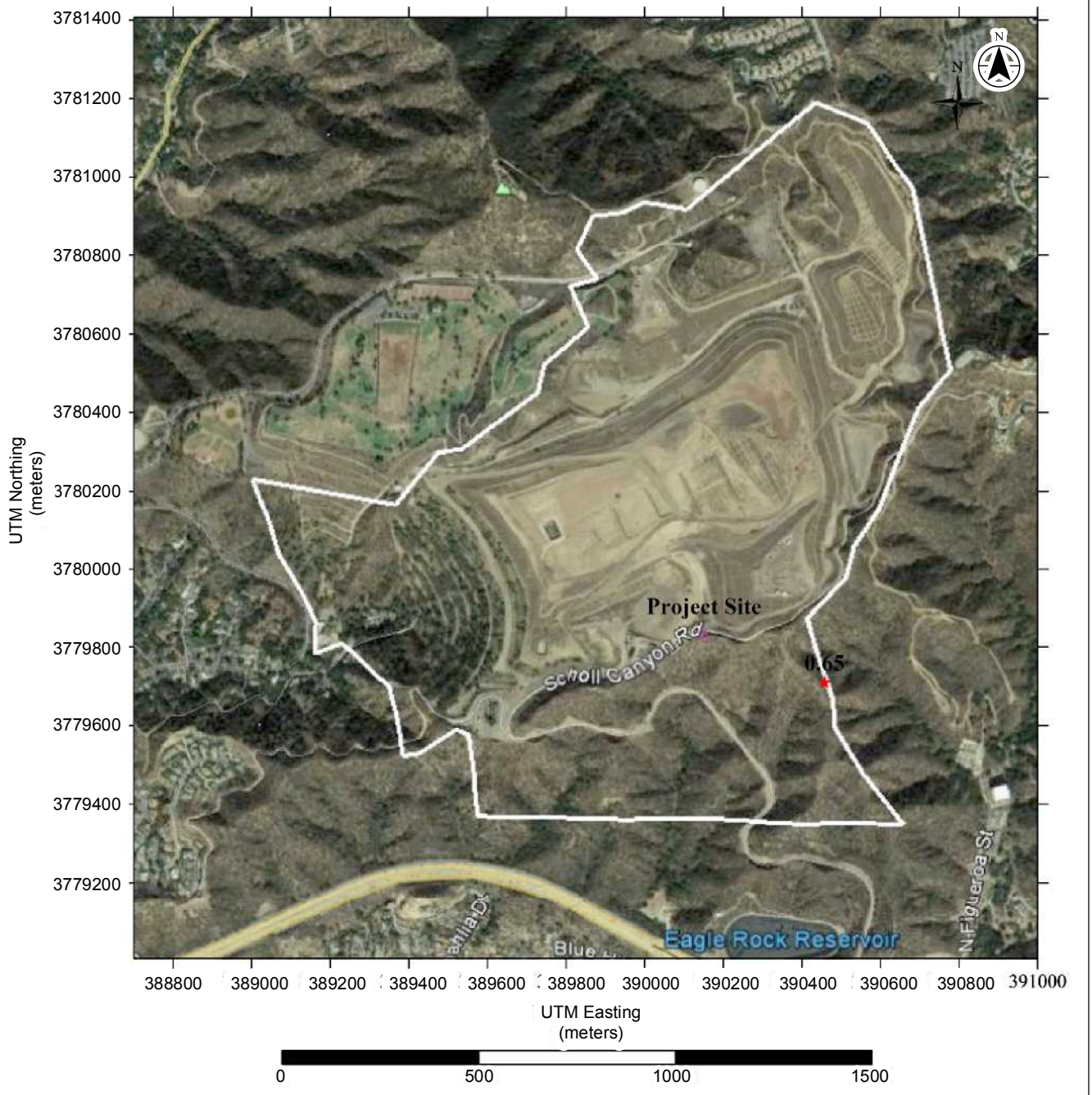

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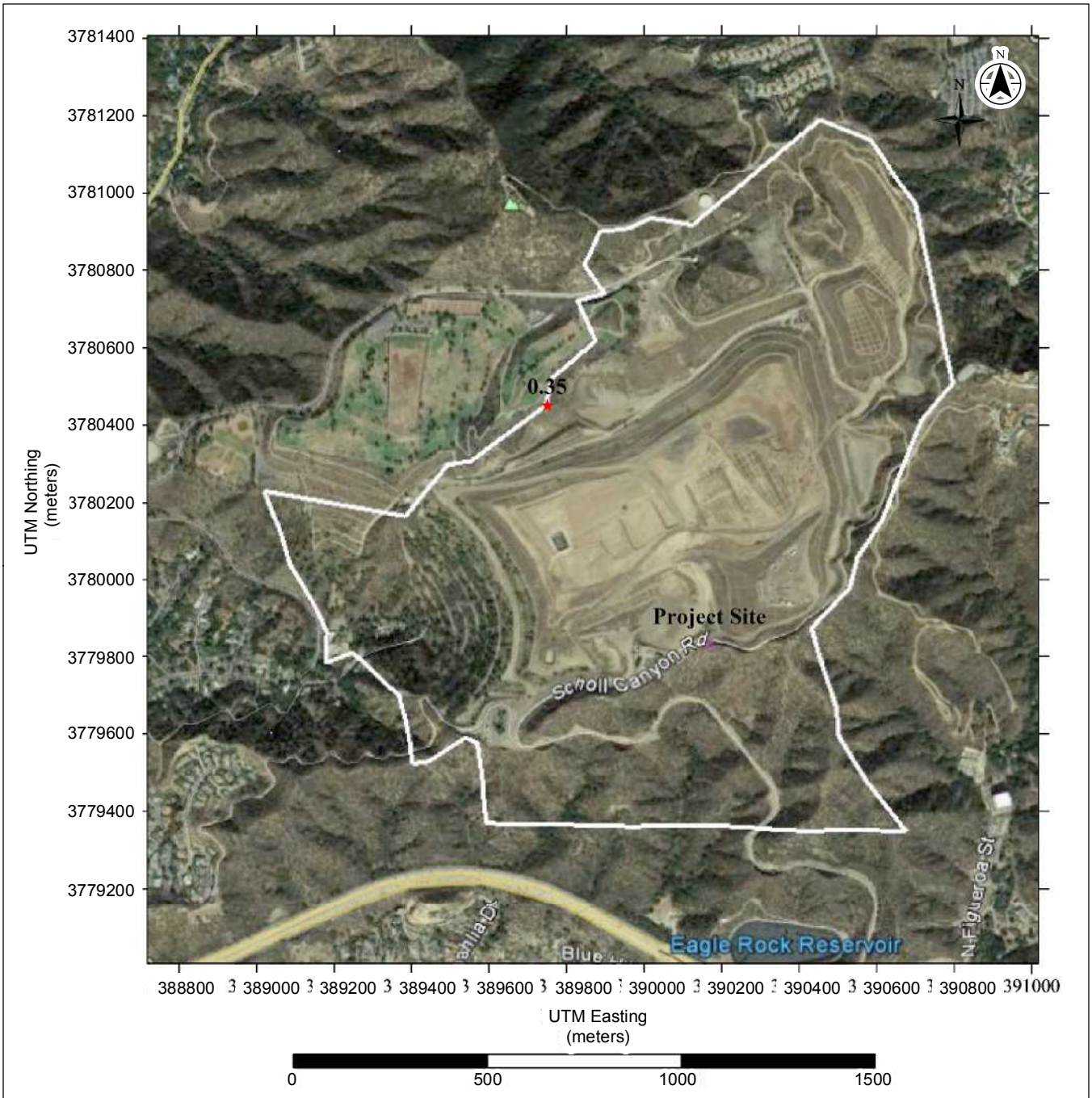
Figure No.
3.3-1G

Title
AERMOD Output for 6th highest 24-hour PM10 Concentrations (ug/m³)

C:\Users\jtrook\Desktop\205712300\mxd\20170721\Fig3.3-2H_AERMOD_8th_highest_24hr_PM10_25_20170723.mxd Revised: 2017-07-23 By: jtrook



Modeling performed by Montrose Air Quality Services

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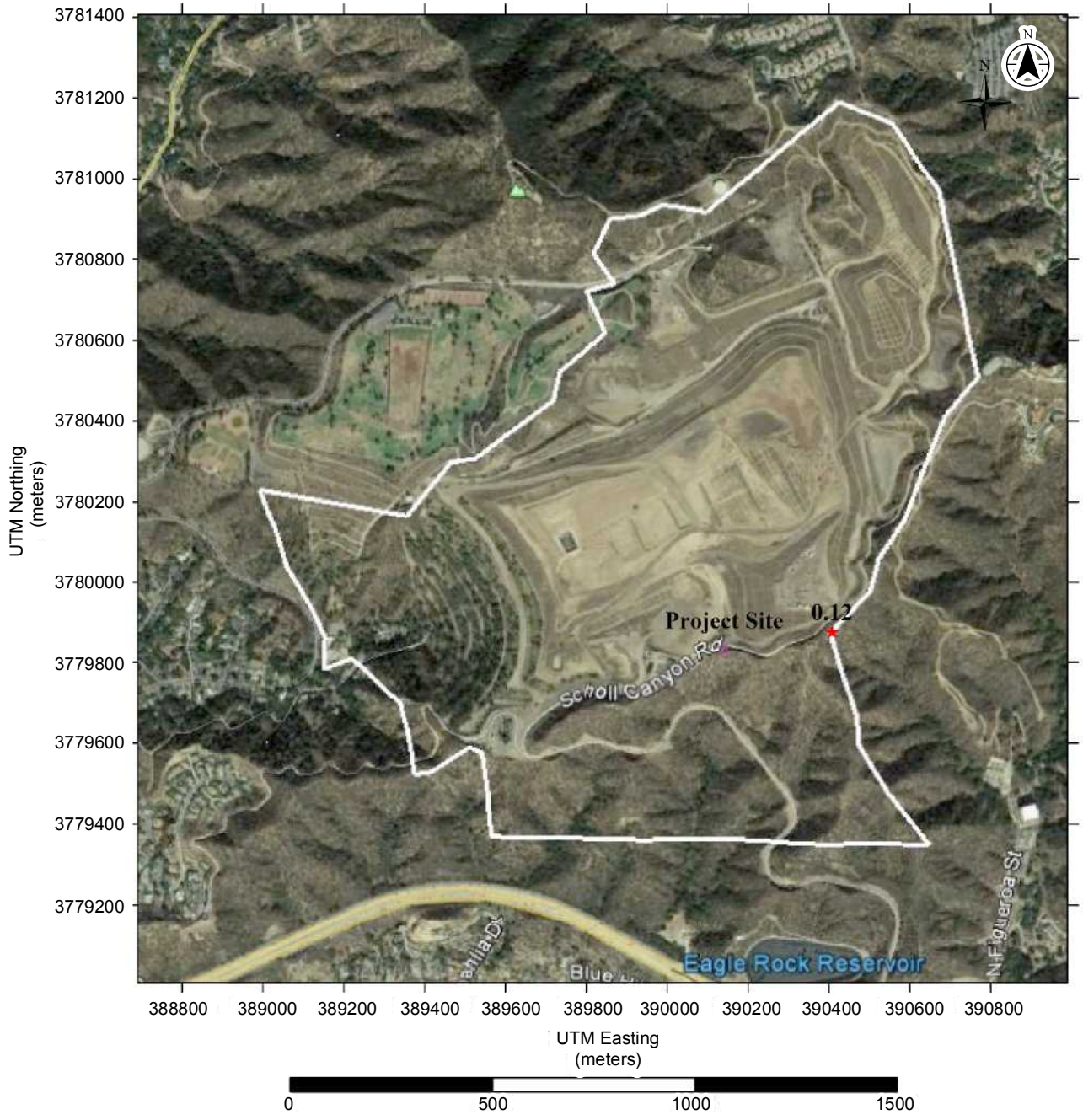
Figure No.
3.3-1H

Title
AERMOD Output for 8th highest 24-hour PM2.5 Concentrations (ug/m³)

C:\Users\jtrook\Desktop\2057123300\mxd\20170721\Fig3_3_2L_AERMOD_Annual_PM10_25_20170723.mxd Revised: 2017-07-23 By: jtrook



Modeling performed by Montrose Air Quality Services

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Glendale, CA

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Prepared by JT on 2017-07-21
Technical Review by CH on 2017-07-21

Client/Project
City of Glendale Water and Power
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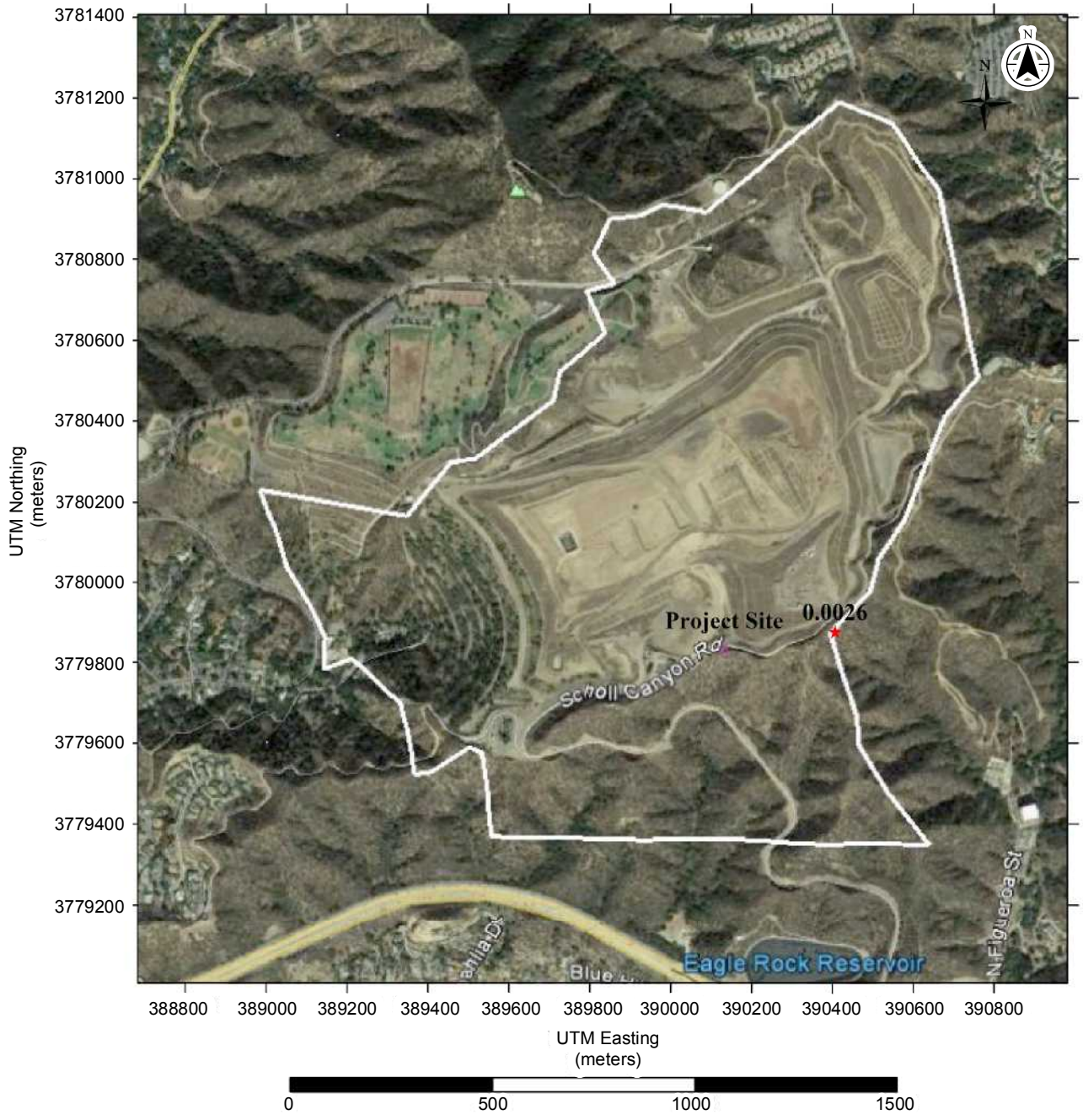
Initial Study/Mitigated Negative Declaration

Figure No.
3.3-1l

Title
AERMOD Output for Annual Average PM10/2.5 Concentrations (ug/m³)

C:\Users\jtrook\Desktop\205712300\mxd\20170721\Fig3_3_2J_AERMOD_1st_Highest_1hr_SO2_20170723.mxd Revised: 2017-07-23 By: jtrook



Modeling performed by Montrose Air Quality Services

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Technical Review by CH on 2017-07-21

Client/Project
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Figure No.
3.3-1J

Title
AERMOD Output for 1st highest 1-hourly SO_2 Concentrations (ppm)

C:\Users\jfrook\Desktop\205712300\mxd\20170721\Fig3_3_2K_AERMOD_4th_highest_1hr_SO2_20170723.mxd Revised: 2017-07-23 By: jfrook

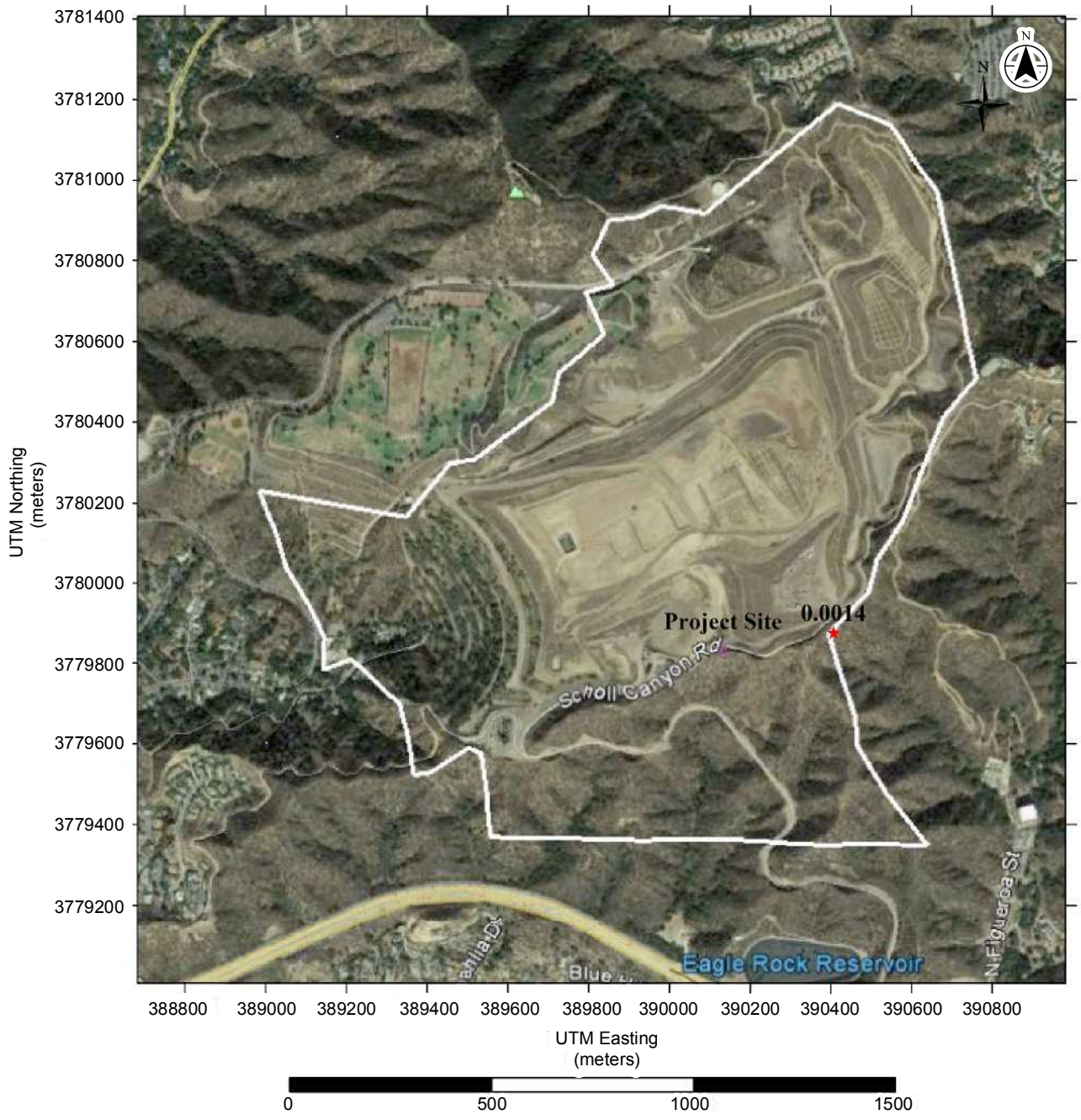

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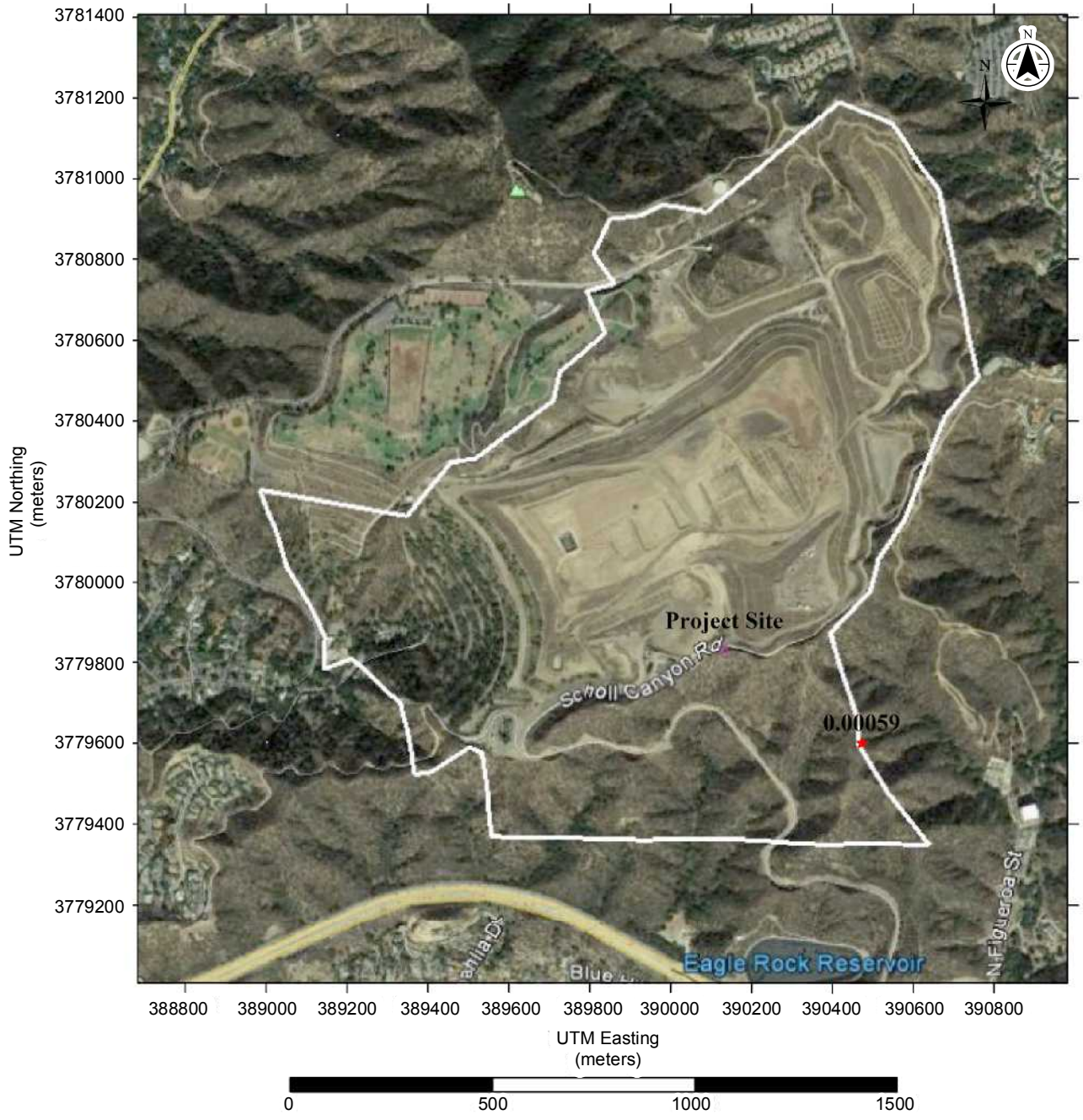
Figure No.
3.3-1K

Title
AERMOD Output for 4th highest 1-hourly SO_2 Concentrations (ppm)

C:\Users\jfrook\Desktop\205712300\mxd\20170721\Fig3.3_2L_AERMOD_1st_highest_24hr_SO2_20170723.mxd Revised: 2017-07-23 By: jfrook



Modeling performed by Montrose Air Quality Services

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Figure No.
3.3-1L

Title
AERMOD Output for 1st highest 24-hour SO_2 Concentrations (ppm)

By complying with the applicable regulations, the air quality impact from operation of the Proposed Project is expected to be less than significant toward the national and state ambient air quality and would not conflict or obstruct implementation of the air quality plan. Therefore, impacts would be less than significant.

Mitigation Measures

None required.

Residual Impacts

Residual impacts would be less than significant.

b) Violate any air quality standard or contribute substantially to an existing or projected air quality violation?

Less Than Significant Impact

Impact Discussion

In addition to the regional significance thresholds, SCAQMD has also developed localized significance thresholds (LSTs) to indicate daily emission levels from construction and operation of a project based on the project location and distance to the nearest sensitive receptor. The nearest sensitive receptors are identified to be located approximately 843 meters from the emission sources. Figure 3.3-2 shows the location of the sensitive receptor relative to the Project site.

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Figure No.
3.3-2

Title
Nearest Sensitive Receptor Location

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Localized Construction Impacts

Since the Proposed Project size is evaluated as a two-acre project for a conservative analysis, the mass rate look-up table in the "Finalized Localized Significance Threshold Methodology" document prepared by SCAQMD is used. Table 3.3-15 shows the impacts of project construction emissions to the localized air quality are below the significance thresholds.

Table 3.3-15 Localized Significance Threshold Analysis

Pollutant Type	Max. Daily Emission[a] (lbs./day)	SCAQMD Significance Threshold for Construction (lbs./day)	Exceed Threshold (yes/no)
NO_X	137 ~~53~~	175	NO
CO	42 ~~18~~	7,957	NO
PM10	54 ~~14~~	160	NO
PM2.5	51 ~~18~~	82	NO

Notes:
~~a) The maximum daily emissions for construction activity are the net emissions from the earth-moving activity and LFG combustion in the flare system with LFG combustion in the boilers at Grayson Power Plant.~~

Based on Table 3.3-15, the air quality impact of construction activity to the nearest sensitive receptor will be less than significant.

Localized Operation Impacts

Air dispersion modeling was performed to estimate the concentrations of NO_2, CO, PM10 and PM2.5 from the operational emissions of the Proposed Project to determine the localized air quality impacts.

Table 3.3-16 summarizes the results of the model and compares with the ambient air quality standards. Detail model input and output information is provided in Appendix A.3.

Table 3.3-16 AERMOD Model Output - Localized Impact

Pollutant	Averaging Period	Project Impact	Background[a]	New Ambient	Limiting Standard	Type of Standard
NO_2[b]	1-HR	0.030 ppm	0.090 ppm	0.12 ppm	0.18 ppm	CAAQS
NO_2[b]	1-HR (98th %)	0.014 ppm	0.073 ppm	0.086 ppm	0.10 ppm	NAAQS
NO2[c]	Annual	0.00013 ppm	0.022 ppm	0.022 ppm	0.03 ppm	CAAQS
CO	1-HR	0.0145 ppm	3.1 ppm	3.24 ppm	20 ppm	CAAQS
CO	8-HR	0.0344 ppm	2.2 ppm	2.23 ppm	9 ppm	CAAQS
PM10	24-HR	1.07 ug/m3	88 ug/m3	89.07 ug/m3	Allowable increase of 2.5 ug/m3	CAAQS/SCAQMD Allowable Increase
PM10[d]	24-HR (6th highest over 5 years)	0.065 ug/m3	88 ug/m3	88.65 ug/m3	150 ug/m3	NAAQS
PM10	Annual	0.118 ug/m3	35.4 ug/m3	35.52 ug/m3	Allowable increase of 1.0 ug/m3	CAAQS/SCAQMD Allowable Increase
PM2.5	24-HR	1.07 ug/m3	48.5 ug/m3	49.57 ug/m3	Allowable increase of 2.5 ug/m3	CAAQS/SCAQMD Allowable Increase
PM2.5	24-HR (8th highest)	0.35 ug/m3	29.80 ug/m3	30.15 ug/m3	Below SIL of 1.2 ug/m3	EPA Significant Impact Level (SIL)
PM2.5[e]	Annual	0.118 ug/m3	11.95 ug/m3	12.07 ug/m3	Below SIL of 0.3 ug/m3 Allowable increase of 1.0 ug/m3	EPA Significant Impact Level (SIL) CAAQS/SCAQMD Allowable Increase

Notes:

a) The background values are based on the highest concentrations monitored during 2011 through 2015, except the year 2013, at West San Gabriel Valley (Pasadena) monitoring station. In 2013, the higher readings between Pasadena and Central Los Angeles monitoring station (Station No. 087) were used because the 2013 Pasadena background data were marked incomplete. Additionally, the background values of PM10 and SO_2 were based on the readings from the Central Los Angeles monitoring station since the Pasadena monitoring station did not record any background data for those pollutants.

b) The NO_2 1-hour modeling was refined using the AERMOD Ambient Ratio Method Version 2 (ARM2) option.

c) The NO_2 annual modeling was refined using the AERMOD ARM option, which assumed a 80% conversion factor of NO_X to NO_2.

d) The PM10 24-hour modeled values were based on the maximum 6th highest concentration over 5 years period.

e) The PM2.5 24-hour modeled values were based on the 8th highest concentration averaged over 5 years period with the background concentrations of 98th percentile of 24-hour data averaged over 5 years period.

f) There are receptors surrounding the facility at lower and higher elevations than the emission sources. The model was run on non-default option (flat terrain) on all receptors at lower elevations; and a default option (complex terrain) was selected to on receptors above the emission sources base elevation. The project impact values shown in the table above is the highest values from both model runs.

The values shown in Table 3.3-16 are the highest pollutants concentration values from operating the proposed electrical generating units at any receptors outside the Scholl Canyon Landfill boundary. These values are below the significance thresholds; therefore, the localized air quality impacts during the operation activities of the proposed Project are expected to be below the significance threshold.

Mitigation Measures

None required.

Residual Impacts

Residual impacts would be less than significant.

c) *Result in a cumulatively considerable net increase of any criteria pollutant for which the project region is non-attainment under an applicable federal or state ambient air quality standard (including releasing emissions which exceed quantitative thresholds for ozone precursors)?*

Less Than Significant Impact

Impact Discussion

The criteria pollutant emissions caused by the construction of Scholl Canyon Landfill power plant and the operation of the proposed electrical generating equipment are determined to be less than significant by complying with SCAQMD regulations. The Project is required to obtain emission reduction credits, install high efficiency oxidation catalysts as BACT technology and run air dispersion modeling to demonstrate compliance with the regulations. For detailed discussion, please refer to impact discussion under impact topic "b" above. The net increase of any criteria pollutant from the Proposed Project will be less than significant.

Mitigation Measures

None required.

Residual Impacts

Residual impacts would be less than significant.

d) *Expose sensitive receptors to substantial pollutant concentrations?*

Less than Significant Impact

Impact Discussion

The Proposed Project site is located within the boundaries of Scholl Canyon Landfill in Los Angeles County at the northwest of the intersection between Ventura Freeway (State Route 134) and State Route 2. The nearest residence is located approximately one-half mile to the east of the Proposed Project site. The nearest non-residential sensitive receptor, which is Eagle Rock Elementary School, is located more than one and a half mile to the southeast of the Project site.

As discussed in previous section of the report, criteria pollutant concentrations from the Project are expected to disperse substantially before reaching these sensitive receptors. Additionally, based on Tier IV health risk assessment, it is determined the toxic air contaminants (TAC) exposure on the nearest sensitive receptors would be less than significant. The following section provides a detailed discussion of the impact of TAC emissions from the power generation project.

Toxic Air Contaminants

This section discusses whether the toxic air contaminants (TAC) emissions from the Proposed Project will have the potential to cause significant public health impacts in the surrounding area. A detailed Tier IV health risk assessment was performed to quantify and assess potential health risk impacts. The health risk assessment modeling was conducted using the air dispersion model (BREEZE AERMOD) and the ARB Hotspots Analysis Reporting Program Version 2 (HARP2).

The health risk assessment generally consists of the following steps to estimate health impacts:

1. Identify the types and amount of toxic air contaminants generated from the project;
2. Estimate ground level TAC concentrations at each receptor location using air dispersion modeling;
3. Estimate the amount of pollutants to which people could be exposed through inhalation, ingestion, and dermal contact; and
4. Characterize the potential health risks by comparing worst-case exposure to safe standards based on known health effects.

TAC emissions inventory

TAC emissions associated with the Project will consist primarily of combustion byproducts produced by the electrical generating units. TACs are compounds designated by the California Office of Environmental Health Hazard Assessment (OEHHA) as pollutants that may cause a significant health hazard.

TAC emissions were calculated based on the following parameters:

- Concentrations of TAC compounds are based on the average analysis results of landfill gas samples taken in the years 2013 to 2015.
- Concentrations of additional TAC compounds are based on the USEPA AP-42, *Chapter 2.4: Municipal Solid Waste Landfills, Table 2.4-1, Default Concentrations of LFG Constituents*.
- Formaldehyde emission factors are obtained from ARB California Air Toxics Emission Factors (CATEF) database (http://www.arb.ca.gov/app/emsinv/catef_form.html) for engines. For flares, the emission factor is based on SCAQMD *Supplemental Instruction for AB2588 Facilities for Reporting Their Quadrennial Air Toxic Emissions Inventory*
- The control efficiency of ICE is calculated based on the NMOC destruction efficiency of 86.1 percent for non-halogenated species and 93.0 percent for halogenated species per USEPA AP-42, Chapter 2.4, Table 2.4-3 and the catalyst destruction efficiency of 97.7 percent, which is the default control efficiency used in SCAQMD Rule 1401 Calculator.
- An ammonia concentration of 5 ppmv @ 15 percent oxygen is based on the SCAQMD BACT determination for a similar project (LFG-fired IC engines at Frank R. Bowerman landfill).

As discussed in the previous section of this report, the operational emissions from the Biogas Renewable Generation Project are caused by four IC engines, and six flares during construction of electrical generating units. Table 3.3-17 summarizes the TAC emissions for each scenario. Detailed emission calculations for the air toxics are provided in Appendix A.4.

Table 3.3-17 TAC Emission Summary

TAC	CAS	Engines (lb/hr)	Existing Flares – Prior to Engine Commission (lb/hr)
1,1,1 – Trichloroethane	71-55-6	3.87E-06	4.34E-05
1,1,2,2 – Tetrachloroethane	79-34-5	2.57E-04	2.89E-03
1,2 – Dibromoethane	106-93-4	1.06E-05	1.19E-04
1,1 – Dichloroethane	75-34-3	5.33E-06	5.98E-05
1,1 – Dichloroethene	75-35-4	2.54E-06	2.86E-05
1,2 – Dichloroethane	107-06-2	1.39E-05	1.56E-04
1,2 - Dichloropropane	78-87-5	2.81E-05	3.15E-04
2 – Propanol	67-63-0	8.26E-03	4.67E-02
Acetonitrile	75-05-8	1.06E-04	5.99E-04
Acrylonitrile	107-31-1	9.21E-04	5.21E-03
Ammonia	7664-41-7	2.70E-01	0.00E+00
Benzene	71-43-2	3.66E-04	2.07E-03
Benzyl chloride	100-44-7	2.27E-05	2.55E-04

TAC	CAS	Engines (lb/hr)	Existing Flares – Prior to Engine Commission (lb/hr)
Carbon disulfide	75-15-0	1.21E-04	6.85E-04
Carbon tetrachloride	56-23-5	4.46E-06	5.01E-05
Carbonyl sulfide	463-58-1	8.07E-05	4.56E-04
Chlorobenzene	108-90-7	2.47E-05	2.77E-04
Chlorodifluoromethane	75-45-6	1.55E-04	1.74E-03
Chloroethane	75-00-3	1.11E-04	1.25E-03
Chloroform	67-66-3	3.30E-06	3.70E-05
Chloromethane	74-87-3	8.44E-05	9.47E-04
Dichlorobenzene	106-46-7	1.66E-04	1.87E-03
Dichlorodifluoromethane	75-71-8	2.62E-03	2.94E-02
Dichlorofluoromethane	75-43-4	3.72E-04	4.18E-03
Dichloromethane (methylene chloride)	74-87-3	1.40E-05	1.57E-04
Ethylbenzene	100-41-4	8.00E-04	4.52E-03
Ethylene dibromide	106-93-4	2.59E-07	2.91E-06
Formaldehyde	50-00-0	9.85E-03	3.51E-01
Fluorotrichloromethane	75-69-4	1.44E-04	1.62E-03
Hexane, n-	110-54-3	1.55E-03	8.78E-03
Hydrogen chloride	7647-01-0	1.78E+00	1.61E+00
Hydrogen sulfide	7783-06-4	3.15E-03	1.78E-02
Mercury (total)	7439-97-6	5.03E-05	4.54E-05
Methyl ethyl ketone	78-93-3	1.40E-03	7.93E-03
Methyl isobutyl ketone	108-10-1	5.14E-04	2.90E-03
Tetrachloroethylene	127-18-4	3.53E-05	3.96E-04
Toluene	108-88-3	1.37E-03	7.77E-03
Trichloroethylene	79-01-6	1.62E-05	1.81E-04
Vinyl chloride	75-01-4	8.03E-06	9.01E-05
Xylenes	1330-20-7	1.41E-03	7.95E-03

Air Dispersion Modeling of TAC Emissions

The AERMOD dispersion model was used to estimate the ground level TAC concentration resulting from the Project. As discussed in the previous section, the AERMOD settings, equipment exhausts parameters, meteorological data used for the criteria pollutant air quality impact analysis.

A normalized emission rate of one gram per second was used to model each source. Similar to the air quality impact analysis, a uniform Cartesian receptor grid covering an area of 36 square kilometers with 50 meters spacing was used in addition to the identification of discrete fence-line receptors.

Health Risk Characterization

The result of the dispersion modeling analysis was imported to HARP2 to determine maximum individual cancer risk (MICR) and non-cancer acute and chronic health risks. As defined in SCAQMD Rule 1401, MICR is the estimated probability of a potential maximally exposed individual contracting cancer as a result of exposure to TAC. Cancer risks were estimated based on 30-year continuous exposure duration for residential and sensitive receptors and a 25 year, 5 day per week, and 8 hours per day exposure duration for worker receptors. Based upon SCAQMD Rule 1401 and the SCAQMD CEQA significance thresholds, a cumulative MICR increase less than 10 in a million is considered to be less than significant when Best Available Control Technology for Toxics (T-BACT) is used. For this Project, the proposed engines and the existing flares are expected to reduce a minimum of 98 percent of NMOC, which would represent T-BACT. Additionally, a cancer burden greater than 0.5 excess cancer cases in areas with an incremental increase greater than one in one million individuals is considered to be significant.

To assess acute and chronic non-cancer exposures, annual and 1-hour TAC ground-level concentrations are compared with the reference (safe) exposure levels (REL), which is developed by OEHHA. A hazard index (HI) is the ratio of TAC exposure of one hour for acute and long-term level for chronic from the facility to the REL. The total HI is calculated separately for acute and chronic effects. A total hazard index of less than one is considered to be below significance. Detail MICR and HI for acute and chronic results are provided in Appendix A.5.

Maximum Individual Cancer Risk (MICR)

Table 3.3-18 summarizes the maximum MICR values of residential and worker receptors for each operating scenario.

Table 3.3-18 Maximum MICR Values

Equipment Scenario	Max. MICR for Residential Receptor	Max. MICR for Worker Receptor	CEQA Significance Threshold
IC Engines[a]	4.74E-08	3.32E-09	10.00E-06
Flares (during construction phase)[a,b]	1.24E-07	1.86E-09	10.00E-06

Note:

a) The MICR values are the highest values of any receptors outside the landfill boundary. Since the values are already below the significance threshold of 10.00E-06, no further analysis was conducted to obtain readings at the nearest residential or worker receptors.

b) The cancer risk of the flares was based on 2 years exposure duration for both residential and worker receptors to reflect impact during construction activities.

Chronic and Acute Hazard Index (HI)

Table 3.3-19 summarizes the overall chronic and acute HI values for each operations scenario. The acute HI values were calculated for each receptor for the combined impact of all chemicals on target organs.

Table 3.3-19 Overall HI Values

Equipment Scenario	Chronic Hazard Index		Acute Hazard Index		CEQA
	Residential (HIC)	Worker (HIC)	Residential (HIA)	Worker (HIA)	Significance
IC Engines[a]	9.52E-03	9.52E-03	2.16E-03	2.16E-03	1.00
Flares (Construction Phase)[a]	1.22E-03	1.22E-03	1.23E-02	1.23E-02	1.00

Note:
a) The HIC and HIA values are the highest values of any receptors outside the landfill boundary. Since the values are already below the significance threshold of 1.00, no further analysis was conducted to obtain readings at the nearest residential or worker receptors.

As shown in Table 3.3-18 and 3.3-19, MICR, HIC, and HIA values of the proposed Project are below the significance thresholds.

Cancer Burden

Pursuant to OEHHA Guideline and SCAQMD policy, if MICR at a representative receptor location is greater than 1.00E-06, an additional analysis must be conducted to determine Cancer Burden. As shown in the Table 3.3-18, the MICR for the Proposed Project is less than 1.00E-06; therefore, Cancer Burden analysis is not necessary.

TAC Emissions Impact Due to Earth Moving Activity during Construction Phase

Toxic air contaminants (TAC) emissions associated with the earth moving activity will consist primarily of combustion byproducts from off-road equipment and vehicles trips. The construction of the facility is anticipated to take place over a period of 18 months. Therefore, TAC emissions from construction activity are not expected to have health significant impacts on cancer and non-cancer chronic risks because these risks are typically occur over continuous exposure for eight to 70 year.

Additionally, the impacts of earth moving activity will typically occur within the fence line of the power plant. The nearest residential and worker receptor is approximately 800 meters to the east of the emission sources. Therefore, the TAC emission impacts from the earth moving activity would to be less than significant.

Mitigation Measures

None required.

Residual Impacts

Residual impacts would be less than significant.

e) Create objectionable odors affecting a substantial number of people?

Less than Significant Impact

Impact Discussion

Even though there are odors associated with LFG, the existing collection system at the site will operate to prevent LFG escape into the atmosphere during construction or after the facility is operational. Additionally, the Project does not result in an increase in LFG or operation of the landfill.

During construction, the existing flares will burn the LFG, which should negate any odors from the LFG. There may be minor odors associated with the use or refuel of the diesel and gasoline powered equipment, or from painting activity or other surface treatments (i.e., building roofing or roadway paving). These minor odors due to construction are expected to disperse substantially before reaching the residential and sensitive receptors that are located over 800 meters from the facility. No significant impacts are expected from the odors associated with construction activity.

Once the Project is operational, most of the LFG will be combusted by the proposed reciprocating engines. The proposed equipment is not expected to create any significant odor and potential impacts would be less than significant.

Mitigation Measures

None required.

Residual Impacts

Residual impacts would be less than significant.

f) Diminish an existing air quality rule or future compliance requirement resulting in a significant increase in air pollutants?

No Impact

Impact Discussion

The proposed electrical generating equipment with the associated air pollution control devices require air permits from the SCAQMD. Before the permit to construct and permit to operate are issued, the facility must demonstrate compliance with all applicable SCAQMD rules and regulations as discussed in Section 3.3.1.6. Therefore, the Proposed Project would not diminish an existing air quality rule or future compliance requirement and there would be no impact.

Mitigation Measures

None required.